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Medical Times

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A Monthly Record of Medicine, Surgery and the Collateral Sciences

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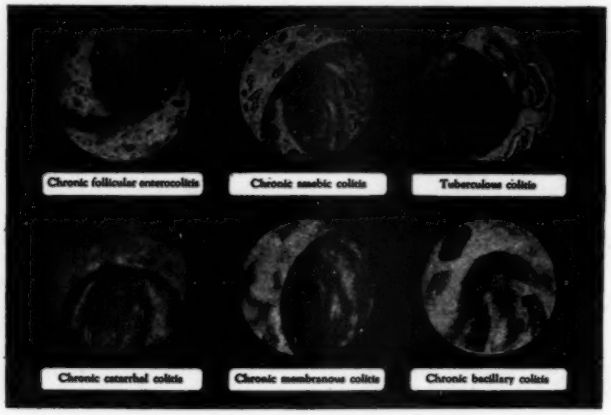

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A Monthly Record of Medicine, Surgery and the Collateral Sciences

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Urology for the General Practitioner

I.—The Modern Conception of Ureteral Stricture and Its Present-Day Management as a Real Advance in Conservative Urology.

DR. VICTOR COX PEDERSEN, A.M., M.D., F.A.C.S.
New York

Doctor Pedersen's New Series

In this issue of the MEDICAL TIMES appears the first of a series of articles under the general title of "Urology for the General Practitioner," by Dr. Victor Cox Pedersen. This series should prove of great interest, since modern conceptions and methods in this field have changed greatly of late years, and Dr. Pedersen is peculiarly fitted to expound the new urology.

In 1910 Hunner passed into medical history as having demonstrated a relationship between tonsillitis and a few "rheumatic" urethral inflammations. His first paper, "Chronic Urethritis and Chronic Ureteritis Caused by Tonsillitis"[2], was read before the Southern Surgical and Gynecological Association in December, 1910.

From this contribution has proceeded full knowledge of the great importance of ureteral disease and stricture as the casual or concomitant lesion in a great many important nonsurgical and surgical conditions of the upper urinary system. In a sense it has required nearly twenty years for this knowledge to be established. This fact illustrates the dictum which I have often uttered before medical societies usually with a definite amount of adverse discussion:—It certainly takes ten years for a valid principle to be demonstrated and then accepted in text books and another ten years for it to be subconsciously applied by the profession-at-large provided the principle is correct, as in this instance. If contrariwise an error has been brought into existence, the second decade is required to undo the error as in the case of salvarsan. Even today I occasionally find general practitioners who believe that this valued preparation is an absolute cure for syphilis after one or very few administrations. Our insane asylums will complete the record of human misery during the next forty years, arising from syphilis not cured by one or a few injections of salvarsan or its analogues.

If there is prejudice against any innovation then the delay in full acceptation is apt to be thirty years. The best example illustrating this dictum is the recent development of physical therapy during the past five years actively and the preceding five years much less definitely. The oldest electrotherapeutic association in the world is the American which was founded in 1890, nearly forty years ago. Through all kinds of mistakes, discouragement and unjustly adverse criticism, its members have made their own experience, improved their own methods and apparatus until at the end of about thirty years they began to see the profession at large manifest an interest in physical measures. Now, at the end of thirty-seven years, these methods are being adopted more or less generally and cordially all over the United States and the world. In this country, however, the delay has been much greater than in Europe. Their interest began nearly twenty years ago so that the European profession is greatly in advance of the American group along these lines.

The onus of ureteral disease is illustrated by the facts that Hunner reported fifty cases of stricture up to 1915 at The New York Academy of Medicine[3] and twelve hundred cases were reached between 1915 and 1922—all among women. Hunner later developed the relation between variable and chronic vesical symptoms without focal lesions and ureteritis.[4]

[2] *Jl. A.M.A.*, April 1, 1911, lvi, 937.

[3] *N.Y.S.M.Jl.*, July 1, 1916.

[4] Intractable Bladder Symptoms Due to Ureteritis, *Jl. of Urol.*, iv, December, 1920.

After normal doubt urologists recognize today that ureteral stricture is frequent in obscure cases of urinary disturbance and a potent factor in operations on the kidney and unfortunately in unnecessary operations on other organs through diagnoses misguided by wrong interpretations of symptoms. As a consultant I have often had difficulty in convincing the patient, his family, the general practitioner or the operating surgeon that all the painstaking and pain produced by investigations are abundantly worth while. Like the present recognition of the pathological entity the future universal acceptance of these diagnostic difficulties must remain a question of somewhat longer time.

In etiology, the anatomical narrowings at the renal pelvic isthmus, bony pelvic brim and bladder wall are strangely unusual sites. In women the majority occur in the broad ligament near the branchings of the internal iliac vessels or juxtaposed to the lymphatic channels and glands, which become infected, enlarged and then extend their infection or their pressure to the ureteral wall, according to Hunner. Thus the majority of strictures in women are from 3 to 5 cm. renoproximal to the bladder. Genital infections determine a much higher frequency in women. My own experience in men is, however, that at least a very large number of strictures are between the bladder wall and the bony pelvic brim. Probably complicated gonococcal disease is less common a cause than other infections. One encounters quite often patients in whom gonococcal and other cystitis has reduced both ureteral outlets to mere points but usually without real obstruction to the urine or damage to the kidney function or substance.

A possible or probable cause of this peculiar fact may be that the muscular coat of the bladder produces a local compensation. Therefore, unless the stenosis is practically a cicatrix it counts for less at this part of the ureter than at any other part.

The pathogenesis may be by external pressure or deformity or inflammation from pelvic tumors or exudate, from abdominal tumors, appendicitis and other inflammatory deposits along the abdominal ureter; very commonly indeed remote infectious foci in tonsils, sinuses, teeth and intestines furnish the organisms. Whereas renal infection during filtration of organisms from the blood may induce renal, ureteral and vesical lithiasis it is at least probable that stricture produces first urinary stasis, second precipitation of its salts and third calculus. Thus the bacteriology of the urine is of supreme importance—another point in diagnosis which I have had difficulty in impressing on general practitioners. The "Rheumatic Diathesis" of older text books is often accompanied by urinary stone. Almost positively the diathesis and all its complications and sequels like the ureteral stricture, in our modern viewpoint, arise from remote infections in the teeth, tonsils, sinuses and intestines commonly and from the uterus, prostate and other sexual organs uncommonly.

The pathology of such infection may primarily cause lesions leading to the stricture, precipitation of urine and lithiasis or severe inflammatory and degenerative changes in the kidney. Preexisting abnormalities or lesions usually invite and focalize the infection.

The strictures may be single or multiple, annular or diffuse, long or short, mural or perimural.

Dense fibrosis is probably rather rare because the ureter is thin walled almost like a vein and embedded in fine reticulated tissue, hence its infiltration differs from that of the urethra lying in its corpus spongiosum, the Fallopian tube with its muscularis, and the Eustachian tube and the nasal ducts in their bony beds. Contrariwise all these channels show very thick condensations of their walls.

As in all profound mucous membrane inflammation the epithelium changes to the pavement type.

According to the predominant influence of the infection with its secondary infiltration and obstruction there occur urinary stasis as in kinks and tortuosities, dilation of the ureter or renal pelvis or both often followed by contracture.

The obstruction ascends the back pressure to the kidnew substance. Even mild cases with little obvious stasis of urine show interstitial nephritis as abundantly proved by modern diagnostics or at operation. All these lesions may be primary or secondary. Again according to the influence of the infection, on the urine precipitation occurs as sand, gravel or stone of the single or multiple type and either fixed at the point of formation or migrating backward into the kidney.

Ureteral fibrosis may precede or cause the stone and often does, or may be augmented and extended by a stone descended from the kidney and arrested on a preexisting soft stricture. By precipitation of urinary salts from infected urine both the stone and the infection may excite the focal fibrosis. The infection may cause several infiltrations of which but one produces or lodges the stone.

The secondary or associated products of the ureteral stricture process are renal pathology in general such as: hydronephrosis, pyonephrosis, pyelitis (chronic and relapsing, puerperal, infantile and juvenile), insufficiency in pregnancy (stricture often dense and bilateral), lithiasis in the kidney or ureter (stricture monolateral or bilateral), lithiasis relapsing after operation and essential hæmaturia. The descending reflex sequels include many or even most bladder neuroses and likewise the factors which augment the symptoms of movable kidney.

The symptoms are objective and subjective. From the vesical disturbance reflexly or directly caused, we have trigonitis and localized changes in the bladder mucosa. In active infection these signs may be very definite. The products of ureteritis and stricture appear in the bladder with the urine exactly as the products of urethritis. Hence the ureteral meatus may be normal or definitely œdematous and clouds of free or strings and slugs of coagulated pus are sometimes seen. Associated objective conditions are infected tonsils, teeth, sinuses and intestines, urethritis and at times arthritis. Stone may exist on one side but pain due to congested, strained kidney will be greater on the other side especially during periods of irritation by the stone. The indication is prompt relief to prevent the onset of damage to a normal kidney. On the other hand a stricture with symptoms may exist and a stone without symptoms be present on other other side. Again relief of the stricture is required.

Small stones may pass with or without treatment but the ureteritis remaining continues the pain and distress. The indication then is to dilate the stricture until full drainage and absence of pain are secured. Attacks of bacteriuria without true infection and suppuration may cause such pain in strictures of minor quality. The bacteria must be eliminated.

Drainage paths around even large stones may exist, especially when the kidney function is relatively good. Usually, therefore, the sudden onset of symptoms means a stoppage due to temporary œdema in and around the stricture or casual thickening of the pus into slugs. As a rule prompt dilatation is indicated.

Pain varying between obscure discomforts and renal colic may appear within the bony pelvis at the commonest site of the stricture or in the kidney by obstruction or by reference or reflex in the bladder. There is no

definite order of frequency. Strictly ureteral pain may be transmitted to any point and in any direction somewhat analogously to pain referred from the prostate, ureterus and gall bladder as examples. Hence we see definite pain in the kidney, hip and groin, sacroiliac joint or sciatic nerve, bladder, thigh, knee or leg in front or behind. Renal pain is due to back pressure and distension. Pain in the opposite kidney arises from the congestion and overwork of compensation. If the diseased kidney is relatively quiescent this symptom is exceedingly important because it commonly foretells a clinical storm in the urinary system. Vesical pain is by reference from both the ureter and the kidney. Altered urine modifies urinary function and causes frequency, difficulty and tenesmus in the bladder or the rectum.

The urine varies from normal to pyuria and hæmaturia dependent on the sites and severity of the lesion. The urine is always typical of pyelitis, hydronephrosis, bacteruria with or without definite renal lesions, ureteritis and finally the presence of stone in terms of numerous crystals and exfoliated epithelium.

Fever varies with the infection, is usually moderate, perhaps through immunity already established and is apt to accompany active suppuration as in pyelitis and pyonephrosis, especially if drainage is temporarily impeded.

Toxic absorption involves the gastrointestinal system especially during attacks of obstruction. Hence we have moderate intermittent and at times severe nausea, tympanites, painful defecation, much as they occur in renal and ureteral stone during a crisis of passage. Old cases may show malassimilation. Colitis may be both a cause and a sequel because its bacteria may involve the urinary system which through general depreciation of health augments the colitis.

The uremic symdrome is common in unfavorable cases such as nervous irritability or depression, headache or malaise. Diagnosis, as always, depends on care in history physical examination, laboratory investigation and finally observation at operation or during nonoperative treatment. The history must include inquiry concerning all possible foci of origin in the tonsils, sinuses, teeth and intestines; previous ureterorenal attacks and relapsing or chronic alteration of the urine. There is a definite symdrome with which the general practitioner should be reasonably familiar consisting of the crisis accompanied by blood, pus, decrease and other symptoms in the urine. Fruitless operations of course based on faulty diagnosis are common. In both sexes we find interference for gallstones, appendicitis, peritoneal adhesions. In women there occur operations for ovarian or tubal inflammation and disease and uterine inflammatory disease or displacement.

Physical examination embraces the general condition, renal zone, abdominal, vaginal or rectal course of the ureter, cystoscopy, ureteral exploration, physical, chemical and cultural urinalysis, complete blood chemistry and *x*-ray work. Palpation of the kidneys develops enlargement and tenderness especially if there is hydronephrosis present. Recent cases may give relatively negative findings but old cases show many and even extreme degrees of signs. Vaginal and rectal touch along the floor of the bladder in a few cases will reach the infiltration, fibrosity or stone. In the male the prostrate is in the way and only lesions just above it may be reached. In all instances both sides should be examined because the normal kidney may temporarily cause pain and because both kidneys are very often involved in the same or allied lesions.

Cystoscopy is often normal unless cystitis is associated according to the degree of its own involvement. The ureteral meatus may be inflamed or normal exactly like the uretheral meatus in stricture. Even stone low down may be so indicated. Trigonitis is not uncommon and blood and pus issuing from the ureter are determined by the disturbance due to the stone. Both sides must be catheterized for stricture and all its sequels. Mere hesitation to pass a point usually does not establish the diagnosis. Bulbous instruments are the best because like the urethral bulbous bougie the obstruction is felt during penetration and withdrawal. Hunner vastly prefers pure bees' wax bulbs because they add the advantage of scratches by stones or gravel. Hydronephrosis usually indicates kink or stricture and pyelitis followed by chill and fever present both stasis and stricture. As in the urethra so in the ureter oedema following the passage of an instrument causes obstruction and pain for a few or many hours or a day or two. If gentleness has been employed so that this reaction is not traumatic, stricture is usually indicated. The analogy is nearly complete with vesical symptoms after passing a urethral sound.

Laboratory investigation is not of great value, particularly in the mild cases. The bacteriology by culture is very important and in my observation it is peculiar that it is not always done. A complete diagnosis is hardly possible without it because it is not infrequently possible to identify the organisms as resident both in the focus of origin such as in the teeth and the urinary system.

The *x*-ray is a good routine especially to demonstrate not only the lesion but many of its sequels. Pyelograms should be done on one side at a time and then never before the first side has recovered as far as possible. The *x*-ray will show abnormalities, tortuosities, multiple stricture, hydronephrosis and renal displacement or migration. It further distinguishes between the stone in the phleboliths and calcified lymph nodes. As in other laboratory investigation so in this, mild cases are aggravatingly normal and do not reach a conclusion.

The differential diagnosis is stated by Hunner[5] most clearly in the following terms "Urinary tract: Cystitis, pyelitis, pyelitis of pregnancy and the puerperium, pyonephrosis, floating kidney, hydronephrosis, stone in the ureter, chronic Bright's disease. Genital Tract: Pelvic inflammatory disease, ovarian disease. Gastro-Intestinal Tract: Various functional disorders of the stomach and intestines, chronic peritonitis, intestinal adhesions, sigmoid adhesions, colitis, chronic pancreatitis, gallstones, appendicitis. Joint and Nerve Conditions: Lumbo-sacral and ilio-sacral joint pains, neuralgia of the sacral plexus, sciatica. Mental disorders." One must add in the male the confusing picture often presented by irregular symptoms produced by disease of the prostrate and seminal vesicles which may simulate ureteral disease low down or within the bladder wall. The various causes of difficulties and hindrances in exploring the ureter I have reported elsewhere,[6] and detailed them in the following terms: "Obstruction to the catheter in the ureter proceeds from the following causes . . . : small meatus, muscular spasm of the walls which is usually overcome by waiting, deviation, curves and kinks in the course of the ureter, which are sometimes passed by permitting the catheter to mold itself in conformity therewith, deformity, distortion and stricture in disease which are frequently impassable, pressure from without the ureter by tumors, aberrant bloodvessels and displaced viscera and within the caliber by impacted calculi which may be circumvented by patience and various trials with other catheters."

[5]Ureteral Stricture-Report of 100 cases. Johns Hopkins Hosp. Bull. XXIX, No. 323, Jan. 1918, p. 11).
[6]Textbook of Urology in Men, Women and Children, page 827).

The treatment is general and local. In altogether too many cases the general measures are neglected such as hygiene of the skin, teeth, tonsils, bowels and diet. Medicinally urinary antiseptics are always necessary, preferably of the formaldehyde type illustrated by urotropine. The degree and activity of excretion of formaldehyde in the urine should always be determined after about three days of full doses. Unless this substance is in the urine most of the antiseptic value is absent. Moreover it may severely irritate the kidney substance up to microscopic or macroscopic blood and a large variety of casts and some albumin. Such dicta apply to the early cases. More advanced cases usually accept this drug and then its benefit is shown by definite improvement in the urine or its irritation by increase of blood already present. I do not like a constant dose and am very apt to direct the patient to omit the drug on Sundays or Wednesdays or both but only after benefit has begun to appear. In many cases the dose may be increased slowly to one or two drachms per day, especially when the formaldehyde is not in the urine at the early examinations—always, however, with frequent observation for signs of irritation.

Urotropin (hexamethylanemin) acts best as a rule in acid urine, but by no means uniformly. It has stood the test successfully for so many years that I am very apt indeed to use it first and not to abandon it until it fails after increasing dosage as just described. If it fails, I then use one of the newer urinary antiseptics. Space forbids even enumeration, which has little value without a discussion such as that given to urotropine. In general all these newer preparations are still *sub judice*.

For the crises leading to treatment or following treatment all the older methods have a value, carefully selected and properly applied. The hot pack, if well borne, and hot stupes over the kidneys should not be ignored, and the more modern physical therapy in radiant light cabinet baths, or with large radiant light machines in bed, are still more efficient. Their thermometric heat is constant and controlled and the actinic influence penetrates deeply. As a rule their benefit is positive and almost immediate.

Unless the foci of infection as foci of origin and deposit of the disease are corrected, very little value ensues upon treatment of the stricture. The following are the advised nonoperative measures. As in the urethra so in the ureter gradual dilatation and never divulsion is indicated. The relief of objective symptoms usually precedes that of subjective symptoms especially in improved urine due to recovery of the kidney. No rule may be laid down for the form of ureteral catheter. Often several forms must be tried on the same stricture before one passes: whalebone tip (with great care), cone tip, olive tip, whistle tip and round tip are all interchanged according to circumstances. Olive tip whalebone guides have in a few cases passed strictures impervious to all other instruments. Only one ureter should be invaded at a time and unless an emergency exists a rest of from ten to fourteen days must be observed before the same side is treated. In a month I prefer to treat the right side one week the left side the second week and the right side again the third week and the left side the fourth week if no severe reaction appears. The diameter of ureteral catheter used should increase slowly so as to dilate and not divulse. There should be no trauma as indicated by bleeding, edema, pain or urinary crisis. Gentleness always avoids these results and also laceration or perforation. Instillation of nitrate of silver or allied drugs always in solution somewhat weaker than would be employed in the urethra is a highly important part of the treatment. Carelessness may cause exstravasation whereas deliberation prevents this accident. Pyelitis after drainage through the catheter has ceased indicates gentle lavage. The nitrate and the newer salts of silver are very much favored. Aluminum acetate—two percent—has been reported by Koll[7] as successful against the colon bacillus and the staphylococcus aureus. Burnham, whose work on urotropine was so valuable perhaps ten years ago, has used a 1 in 2000 watery solution of formaline.

The operative procedures involve commonly the various grades of hydronephrosis and arrested stone together with the underlying lesions of the ureter. I endeavor always to pass a bulbous instrument from the kidney into the bladder whenever the pelvis or ureter is open and upward to the kidney if the operation on the ureter is anywhere except at the isthmus. Hunner emphasizes the wisdom of dilating the ureters before operation when possible. It is well known that fully established drainage alone causes at least temporary improvement in the symptoms and frequently complete and continued cessation of symptoms followed by a more or less full return of renal function. If a relapse of symptoms occurs radical operation is always in reserve. Repetition of the dilatation at intervals sufficiently brief to prevent return of the obstruction will often avoid radical operation.

A dead kidney, often seen in an old case, indicates removal. Deformity of the ureter or the pelvis or both calls for plastic repair. Seniority of experience and judgment are always required in these cases.

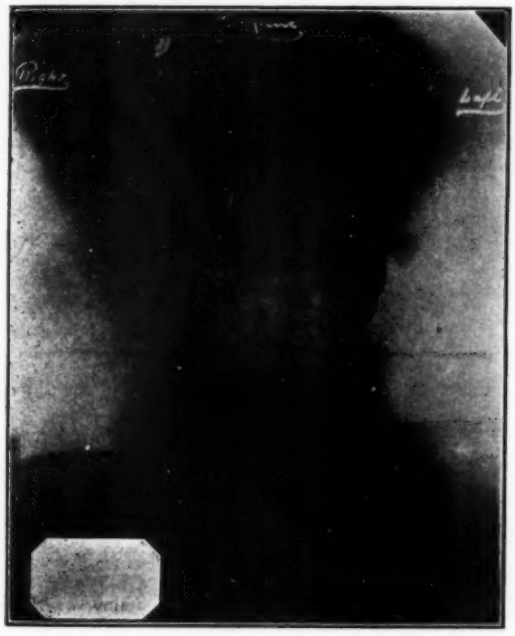
The results of treatment are interesting. A dilated renal pelvis in a short time usually or in a longer time rarely will return to nearly normal size after removal of back pressure by dilatation of the stricture. The renal pelvis is the primary collecting pouch for the urine and therefore might be expected to repeat the behaviour of the secondary collecting pouch or bladder after relief of urethral stricture. As long as either anatomical entity has not been profoundly changed as to its lining and wall restoration or a tendency to it is shown. Extreme changes will show only partial recovery. Mild stricture without infection is usually cured after a few dilatations. Mild or moderate stricture with infection may be rather easily cured provided the infection is corrected but will relapse rather promptly if the infection resumes or is continued. Moderate or severe stricture with active or recent infection behaves variously and no rule of prognosis can be enunciated any more than treatment may be standardized. Old cases, for example with diseased bladder, ureter, pelvis and kidney always require operation and various degrees of help. In all cases a relapse of symptoms is sure to occur whenever the old infection returns or a new one is added to it. This dictum emphasizes the importance of all general measures of treatment previously noted.

A summary of this whole question of stricture of the ureter is in order. Scientific medicine requires determination and removal of cause so as to prevent the extension of the results of that cause. For example the sequels of ureteral stricture may for the most part be prevented by removing the stricture as the definite origin of the sequels and in turn removal of the foci of infection augments the chances of curing the stricture.

A urological investigation is always in order when-

[7]Trans. Am. Urolo Assn. 1911, V, 94).

ever obscure abdominal symptoms are not a more or less typical syndrome of other diseases. This simple technique will prevent operations on other parts of the body which after having shown themselves fruitless indicate a urological diagnosis. Urinalysis must include the bacteriology microscopically and culturally. Sometimes inoculation is required to determine virulence. Bacteria may occur with little or no blood or pus and



A—Lithiasis with Ureteral Stricture

yet be a very important sign, because if neglected the next step in their damage is blood or pus or both. As I have so often said blood or pus in the urine must be traced to its source in order to prove its significance. If the kidney is known to have been involved in the process, the effect of dilatation, instillation and lavage must be accurately followed especially in terms of the disappearance of bacteria, blood and pus, otherwise no means exists of knowing just what course the process is following. In some cases of hydronephrosis the dilation of the ureter is a distinct preventive and such treatment may postpone radical operation indefinitely and in any circumstances should be the preoperative procedure.

In conclusion, I cannot emphasize too strongly the thought that scientific consideration of all these problems requires a good mutual understanding between the internist who is the family physician, the pathologist who is the laboratory factor and the x-ray expert who is likewise a laboratory diagnostician and the urologist who must bring into coordination all the opinions of the others in the light of his own diagnostic investigation and determine the nonoperative or operative treatment.

Only cooperation of this type will at least postpone in many cases and avoid in a few cases operative intervention which in the last analysis is never an unmixed blessing.

In a paper abbreviated to the extreme limit case reports are not in place but the following epitomes are of interest each in its own way.

Case 1, illustrating neglect in relapsing multiple renal lithiasis. F. D. H. Case 15031. May 2, 1923. Evacuated a bean-sized vesical stone on the fifth day after a four-hour renal colic. During the past seven years has passed a dozen similar stones without much suffering except another beanlike specimen causing anuria for three hours. Renal discomfort or dull pain for about two years finally aggravated so that one urologist recommended immediate operation as the x-ray showed a renal stone. Two other urologists advised against operation. An x-ray indicated four small stones in the right ureter. X-rays in my hands with the shadow filiforms in place showed no stones whatever. I therefore dilated the right ureter to size 10 French which resulted in total abolition of symptoms. No stones were delivered through this free ureter. The urine throughout was normal, fortunately without bacteria. The patient was warned to report early in January and July each year for an exploration and to observe full hygiene of skin, bowels, exercise and diet. It is now nearly three years since the patient's last visit and one may be sure that the penalty will be the development of other stones with ultimate damage to the kidney requiring removal. The focus of origin in this patient was never developed because in my hands the urine never contained bacteria. The patient is of the overfed, fat and inactive type.

Case 2, indicating early return of stones through neglect of aftertreatment. As the end product of constipation, infection, and stricture, near the renal pelvic isthmus, stones developed in the kidney, shown by the x-ray to be four. At operation six were removed, renal pelvis cleansed, ureter explored and dilated into the bladder. Prompt and perfect convalescence. Careful instructions that the ureter must be dilated every two weeks, then every four weeks, next every eight weeks and so on up to probably once in six months as a means

B—Same as A, but shows Ureter better

of preventing relapse, including of course attention to the bowels and infection of the urine. The patient, an ignorant tenement house woman, totally neglected these preventive measures "because she felt allright". She may even have enjoyed her habit of constipation—as so many women seem to do. In less than two years

she returned with another crop of stones in the same kidney and *mirabile dictu* the family physician told her that these stones had not been removed by me. Needless to say a practitioner with such an opinion did not confer with me at all so as to learn the facts that I did remove more stones than the x-ray showed, irrigated the renal pelvis and dilated the ureter, constituting a more thorough operation than very many urologists employ. Opinions like these on his part are causes for disrespect of the science and art of medicine and the practitioners of it. Such incidents should not occur and the patient should always be returned to the operator under such charges. I marvel that a malpractice suit against me did not eventuate after his misrepresentation.

Case 3, demonstrating contracture of the ureter after ureterotomy. When a few months pregnant renal colic developed and x-ray showed a small stone about two inches below the renal pelvic isthmus. The cause again was undoubtedly constipation during life accentuated by previous pregnancies, pyelitis, ureteritis, infection, followed by precipitation of urinary salts and calculus. The family physician advocated termination of the pregnancy and operation. I refused operation until efforts at dilatation failed, as they indeed did through density of the stricture as shown by the subsequent course also. Ureterotomy was easily and most gently performed. Indeed the kidney was not disturbed in its bed, because by exposing the ureter the stone was fortunately located and removed. In order to avoid a troublesome convalescence during pregnancy the wound in the ureter was stitched and a cigarette drain placed against it. A watertight wound resulted with primary healing of the incision down to the drain-hole which in turn healed promptly. The patient went through normal delivery. Again aftertreatment was neglected except so irregularly that it failed to overcome the normal tendency of the stricture to return first through its own density as shown by the failures to dilate it before operation and second through the inevitable postoperative periureteral infiltration. The present condition of this patient is that three 4 F whalebone filiform guides may with difficulty and only occasionally be passed through the stricture, one or two being the rule. Although after much delay special whalebone tip ureteral catheters have finally been made for me in behalf of this case the patient does not answer letters or report for treatment. Possibly she feels "all right" and probably because her urine is relatively normal she has not received a sound medical opinion from her family physician as to the wisdom of taking aftertreatment until I as a urologist discharge her from that treatment. My opinion is that these postoperative strictures should never cease their aftertreatment.

Case 4, showing the prostate as the source of renal infection. About ten years ago this patient was under treatment for the sequels of gonococcal urethritis in the posterior urethra and prostate. The gland showed many wide open acini, from which fluid and inspissated pus could be expressed into the urethroscopic field by the finger in the rectum. Perineal drainage of these multiple abscesses or sinuses was refused and the patient disappeared from private practice. About nine years later he appeared at my clinic, no longer able to resume private care. The multiple abscesses in his prostate had never received attention beyond utterly futile posterior urethral instillation of silver nitrate even up to 10 per cent. Necessarily he had a semicicatricial mucous membrane. His left kidney was badly infected from the foci in the prostate and its ureter profoundly infected, infiltrated, strictured and contractured. Dilation to about 12 or 14 F so improved the drainage that the kidney began to resuscitate but finally passed out of function toward the end of perhaps fourteen months. Nephrectomy was refused, although recommended, because the opposite kidney was beginning to show signs of absortive damage. Therefore the diseased organ was creating an emergency condition of great danger. Since this patient disappeared it has not been possible to trace him because all letters are not delivered. Judging from the quality of his refusal through fear, the probabilities are that the man is now dead, first because eleven years ago he neglected a cure of his prostate and second because about eighteen months ago he refused all operative rescue of his diseased kidneys.

Case 5, establishing the dictum that all abdominal and thoracic syndromes which are not typical or conclusive require ureterorenal exploration. The patient was a painter who had had obscure and rather severe abdominal and thoracic pains without, however, being typical of any lesion in liver, gall bladder, intestines, appendix, stomach, oesophagus, peritoneum, pleura, lungs or heart. Three weeks of such investigations had passed before he was referred to me. In the presence of normal urine (so far as a few analyses indicated) and uninvolved sexual organs, dilatation of his left ureter to size 8 F immediately abolished all pain. Like the majority of these patients, this man is guilty of total neglect of aftertreatment and is surely inviting a relapse of his symptoms. The probable cause was a reasonably severe attack of painters' colic some time before I saw him whose constipation probably gave him bacteria in the urine which focalized in the left ureter and thus caused the first grade of ureteral stricture.

Case 6, proving the wisdom of dilating both ureters before operation and particularly of dilating the ureter of a badly diseased kidney in a patient so depreciated that operation would almost certainly be fatal. The woman had had several children, seemingly with kidney disturbance during each pregnancy and lifelong constipation. She presented herself from another clinic where removal of the diseased kidney had been recommended more or less as an emergency procedure and notwithstanding her emaciation, anaemia, weakness and semisepsis. I decided to dilate both ureters, especially that on the diseased side so as to evacuate as much of the necrotic and septic material in that kidney as possible which in the x-ray showed a very great number of large stones and a tortuous dilated and strictured ureter. No sand, gravel or stones have seemingly ever passed from this kidney in the patient's knowledge and none during my treatment. Immediate benefit appeared so that all her general and focal conditions improved even beyond expectation. The woman is alive at the end of nearly four years and living the life of a tenement house dweller in all its physical and medical disadvantages with reasonable if not great success and health. Her susceptibility to colds of which she has had a severe one at least once every winter, proves that her resistance is by no means fully efficient.

Instillations and irrigations of the diseased kidney bring on active crises so that the sole treatment today is occasional dilatation of the diseased ureter, thorough irrigation of the bladder twice each week to reduce irritation by night from the cystitis, urinary antiseptics and general good hygiene. The last kidney function test performed indicated a nearly normal function in the right kidney. Obviously this kidney is physiologically competent although the laboratory findings are not

normal. In my opinion the recovery of this woman is a better index of the so-called normal kidney than any laboratory findings could possibly be—in such cases. Almost surely the good kidney will break down perhaps soon and thus will be created an emergency whose sole likelihood of relief will be removal of the diseased kidney. I am hoping that the woman's attention to herself will permit me to recognize this change very early indeed, otherwise such an operation will not be possible. I regard this case as a peculiarly definite illustration of good judgment as to when not to operate.

Case 7, revealing acute hemorrhage from one kidney probably after a mild pueperal infection. The woman is of the frail, nervous, fertile type. One child born about seven years ago, followed by a certain amount of illness whose character is hard to judge at so remote a time. Although deeply desirous of further offspring and not at all guilty of birth-control methods, no pregnancies since the first child. Sexual organs at the present time seemingly normal. Referred to me in March, 1925, with a history of right sided pain with hemorrhage, but without pus, sand, gravel or stone in several attacks. Exploration of the ureters revealed both to admit size 5 catheters with considerable difficulty especially on the right side. Without any reaction except the distress during the dilatation, both ureters were dilated to size 8 F repeatedly at longer and longer intervals for nearly a year. Up to July, 1926, ten treatments had been given more or less alternately between the sides but chiefly on the right side. About one year after the last dilatation of the right ureter, the woman returned saying that she had had no pain, no hemorrhage, no pus and only two very insignificant attacks of discomfort only sufficient to attract her attention to the right kidney. Dilatation will now be carried to 10 or 12 F and so maintained hoping that she will never have another attack. As the bacteriology was consistently negative, a reasonable effort will also be made to render impregnation possible. I believe that any woman who honestly desires motherhood should be assisted to that end to the ultimate limits of conservative treatment. Fortunately this woman has placed herself entirely in my hands so that the dictates and practices of modern conservative urology may be consistently employed without interference through less information on the part of the family physician, who fortunately concurs in my control.

These few cases are sufficient to illustrate various types of ureteral stricture, its sequels and conservative instrumental but nonoperative treatment. As previously stated in this brief article, operation is always in reserve and may advisedly be temporarily postponed in certainly nine out of ten of these cases as I see them. The *furor operandi* is never based on sound judgment. It is hoped that the meager details of sound principles contained in this paper will be of service to general practitioners who are of course the first to meet both obscure and frank cases of ureteral stricture.

That a great deal of work in this field has been done after Hunner blazed the trail is shown by the following extensive bibliography. Its publication in full is worth while as an added value to this brief and sketchy paper and in order to make a record up to the present time of all the matter in medical literature on the subject for the benefit of the reader who may wish to study it further.

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(*Concluded on page* 118)

The Glands of Internal Secretion

Their Relation to Skin Disease*

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What are the relations of the endocrine glands to skin diseases? Cunningham suggests that the man who realizes that the skin is a part of the coordinated organism, responsive to the disturbances of its other elements, will approach the problem of therapeutics with a better prospect of results than the one who confines his ministrations to the application of more or less objectionable salves and more or less mischievous rays.

We should not denounce local treatment. It is a valuable adjuvant of internal treatment, and is under some circumstances the only thing demanded. But we must not forget the broad general principles which are grounded in the correlation of function.

It is well known that myxedema is one of the consequences of hypothyroidism. It is a nutritional vice observed in acquired cretinism. There is no doubt as to the connection between this alteration of the skin and a defective ductless gland.

Yet the perfectly obvious deductions to be drawn from this observation has been largely overlooked by the teachers of dermatology. It was clear that a disordered ductless gland was capable of producing a grave cutaneous disturbance. But we were not aware that milder cutaneous disturbances might be attributable to less complete involvement of the gland. Cunningham says that we have permitted an indication of the plainest character to escape pursuit. We have become entangled in a maze of uncertainty and doubt. Lesions that are not actually neoplasms are usually of a circulatory origin. Circulatory is practically synonymous with nutritional, for changes in the speed and the force of the circulation induce changes in the nutrition of affeted areas, and the ductless glands admittedly have to do with the conservation of nutrition. Thus congestive and inflammatory changes get us back to the ductless glands.

In this connection, the writer has noted a marked edema of both the penis, the scrotum, and the vulva following transplantation of testicular and ovarian tissue in a number of cases, and this edema has been so marked as to cause considerable anxiety.

Cunningham does not doubt that hypertrophy, even where the circulatory element is demonstrable, as in scleroderma with its collagen bundles, is a nutritional abnormality.

On October 20th, 1924, a case was referred to the writer by his physician Dr. A. J. Gelarie. *The patient was suffering from scleroderma and Raynaud's disease.* Transplantation of a section of testicular tissue was made in the abdominal wall. Only part of the tissue remained and a large amount sloughed away. On January 15th, 1925, the affected fingers were recovered and the scleroderma throughout the body was markedly improved. On February 25th of the same year, patient reported from Virginia that he was feeling fine, playing eighteen holes of golf daily as well as horseback riding. The transplantation however, did not cure his scleroderma, for within six months all the symptoms which had been relieved had reappeared and the patient died suddenly of pneumonia, before the writer had an opportunity of making a second transplantation.

Atrophy, the end condition in this and other dermatoses, is manifestly of the same character. Acrodermatitis chronica atrophicans is a case in point. As the name implies, it is a chronic disease of the extremities characterized by atrophy of the skin. It is usually confined to the upper extremities. Under the name of diffuse idiopathic atrophy of the skin the lower limbs are involved as well as the upper. There is little doubt that the two conditions are but variants of each other, and so like to scleroderma as to create the impression that they are of common origin. If three diseases bring about the same results it is a fair presumption that they are operating through the implication of some organ possessed of the power of modifying nutrition.

As the thyroid exercises such a control of nutrition as is manifest in the cause and cure of myxedema, it is plausible that in all of those marked degenerative changes of varied nomenclature but identical structure, the gland is the original point of attack, and that conspicuous manifestations are secondary to its disordered function.

Bearing upon the correctness of this deduction is the reported success of the action of pituitary in the treatment of morphea. Now pituitary is no thyroid, and it would appear to be beside the subject to mention its therapeutic application to conditions attributed to the thyroid. But if we bear in mind hormone balance and the principle of homostimulation, we understand that the stimulation of pituitary activity will stimulate thyroid activity and thus set in motion the very influence we desire to obtain.

Regarding acne, many authorities now believe that cases of this common disease are victims of minor thyroid deficiency. Many a time the giving of thyroid extract has wrough amazing changes in these anemic, undersized and disfigured persons. Undeniably there is another aspect of acne which does not depend on hypothyroidism. The acne of the fleshy, ruddy subject, obviously the victim of the unwise indulgence of gluttonous appetites, is to be treated along the lines of rational restraint.

Cunningham points out that some skins will endure a great amount of external violence without yielding an inflammatory reaction, while others are damaged very speedily. Others again require no external accessory but burst forth violently under the excitation of the internal irritants. The logic of this is that the external agencies are pathologically effective only in conjunction with the internal. If the bodily functions are running smoothly and vigorously, the skin will be endowed with the requisite resistance to ill usage. For instance, when a patient has eczema, it may be deduced that there is a dysfunction of some organ or organs.

The thyroid, being the controller of nitrogenous metabolism, is answerable for this disturbance. Regulation of the diet in the direction of reduction partially corrects the abnormal condition by giving the deficient thyroid secretions less to do. Feeding of thyroid would enable the patient to keep his energy at the higher point of efficiency by taking in safely a larger amount of fuel.

Cases of acne so frequently appear at puberty, at menstruation and during pregnancy, that the writer believes the condition is more attributable to dysfunction of the gonads than to the thyroid, and he

*This is the seventh article of this series.

has noted that following numerous transplantations, acne showed marked improvement, often entirely clearing up.

Dr. L. I. Stanley of San Quentin has noted the same result following his method of hypodermically introducing testicular tissue.

The fact that the thyroid frequently enlarges at puberty and pregnancy rather indicates to the writer, that this gland is trying to compensate for internal secretions which the gonads are not vigorous enough to give.

The adrenals are the most susceptible of all the endocrine glands to the influence of infection. Urticaria is ascribed to intestinal toxemia. Sudden paralysis of the blood vessels in restricted areas but of wide dispersion characterizes the lesions of this affliction. Such a paralysis is due to the failure of the inhibitory action of the adrenals. The circumscribed adema is due to the acidosis following every interference with the circulation and the proper oxygenation of the parts. The administration of adrenalin relieves urticaria.

In relation to this the writer has had a number of cases following transplantation develop a temporary urticaria usually confined to the locality of the wound, but in some instances it involved the skin of the entire body. This urticaria seldom lasts more than a few days and is seldom attended with any other signs of an anaphylactic reaction.

Canities, grayness of the hair, is similar to leukoderma in all essential qualities. Hair is simply an appendage of the skin, and its color depends on the same influence that controls that of the skin. Instances are on record that the hair has turned white overnight in consequence of some sudden terror. When we consider that the adrenals are gravely affected by strong emotions and induce the reactions which we denominate "shock", it is conceivable that their disordered state may have another characteristic effect in decolorizing the hair.

Trotter's studies have demonstrated that there is no difference in the sexes or races (white and negro) as to the abundance, length and diameter of the facial hair until after the tenth year of age. After the tenth year of age the hair in males exceeds in length and diameter that in females, and the facial hair of white women is somewhat more abundant and coarser than in the women of the negro race.

It has been assumed that the localized hair distribution following adolescence is a secondary sex characteristic. One has pointed to the difference in the hair growth in the two sexes at adolescence, referable to awakened gonadal activity.

Hair appears at maturity on the pubes and in the axillae in both sexes, but a long, thick growth on the face occurs only in the male. How is this to be explained? To Engelbach, an inherent property of the glandular hormones in each as to the selective location of hair growth seems to be the most logical explanation for the development of a male facial distribution following adolescence. This same special hormonic predisposition is possibly also productive of such differential sex characters as voice, stature and mammary development.

In this connection Engelbach mentions the well-known abnormality of hair growth called hypertrichosis which is found present in the early castrate, eunuchoid, and thymicolymphatic types.

In these positive cases of decreased gonadal function, hypotrichosis is not universal, as the scalp is usually covered with a heavy growth of long, coarse hair. It also has been accepted that hypothyroidism produces a tendency to localized baldness of the scalp and eye-brows. Hair growth has been connected with the function of the suprarenal gland because of the very marked hirsutism of virilism, supposedly a disorder of the cortex of this gland. The increased growth of hair in the large proportion of positive cases of pituitarism, particularly on the distal extremities, in some instances on the chest and abdomin, has led to the belief that the hypophyseal hormones also influence the dermal appendages.

Relative to hair growth, the writer operated on a physician who holds a chair at the Post Graduate Hospital, New York City. Following transplantation, this physician stated in his report that his hair had returned to his bald spot and the hair was its natural color.

The tendency to a marked hide—hairiness, in which there is a diffuse growth of hair over the face (in the female) and the entire body, comparing to that normally found in the axillary and pubic regions, in positive affections of the suprarenal cortex (confirmed at autopsy), has introduced the ductless glandular tissue as a factor influencing hair growth. There also has been observed in some of these cases a brownish-black skin discoloration, which would suggest a disorder of this portion of the supra-renal as an etiologic influence in abnormal dermal pigment.

In this connection, the writer has transplanted on two cases of Addison's disease, both markedly pigmented. *In each case the pigmentation disappeared.*

Engelbach has noted the absence of dermal pigment (vitiligo) in many positive pituitary disorders. Chloasma in pituitary disorders is located about the hairline of the forehead, angles of the mouth, jaw, nipples, and in other locations which are the seats of pigmentation, as verrucae.

Variation in the intensity of this pigment has been observed, particularly in females during the menses and pregnancy. Variation has also been noted in cases in which there is favorable therapeutic response in the general signs of pituitarism, as decrease in obesity, return of the menstrual flow in amenorrheal cases, etc.

This is considered additional reason for crediting the changes of dermal pigmentation in these cases to the function of the anterior lobe of the hypophysis.

Engelbach considers chloasma as particularly important in a nulliparous woman, owing to its physiologic occurrence in the primipara and the fact that it often becomes permanent after once established, being intensified by various conditions. The constant physiologic enlargement of the hypophysis during pregnancy has been observed. In the pituitary type of woman other mild hypophyseal signs are noted during pregnancy.

A subdermal infiltration about the short and flat bones of the face and extremities and blunting of the peaked bones are sometimes present in pregnancy and considered a pituitary sign. Therefore, in a woman who has conceived, chloasma may be due to a physiologic hyperactivity of the hypophysis occurring during the previous pregnancy and need not be related to abnormal function of this gland in the succeeding years. Many cases of acromegaly begin with and are a continuation of physiologic changes in pregnancy.

Pulay asserts that the changes of the skin as seen in myxedema are due to a hypofunction of the thyroid.

However, the diseases of the skin as they are often seen in Graves' disease have no relation to the thy-

roid. Pulay believes that urticaria and scleroderma occurring in Graves' disease have the same primary etiology as other manifestation of that condition—sympathicotonie.

In myxedema treatment with thyroid gland is indicated, but not in urticaria and scleroderma.

We cannot give offhand a prescription for organotherapy in skin diseases, but in each case various combinations must be tried until we have found a suitable combination.

Scholtz calls attention to the relation between skin disorders and systemic diseases, and mentions the syphilis syndrome, tuberculosis syndrome, diabetic syndrome, erythema multiform group, etc.

From a therapeutic point of view he regards as the most interesting and promising the cutaneous syndromes based on the deficiency and disorders of internal secretions. The best defined syndromes have been developed about the thyroid gland, which is the keystone of the whole endocrine system.

Between the two extreme types of thyroid dysfunction represented by Graves' disease, i. e., hyperthyroidism on the one hand, and by myxedema, i. e., hypothyroidism on the other, there is a great number of cases of various grades of intensity of glandular disfunction.

Dermatologically, hypothyroid cases are more frequent and more amenable to therapeutic control.

The hypothyroid skin syndrome is manifested by thick, dry, pasty skin, suppression of perspiration, lusterless brittle hair, and alopecia. Many cases of dry chronic eczema, psoriasis, ichthyosis and scleroderma have hypothyroidism as the underlying etiological factor, and they readily improve from the administration of thyroid.

Hyperthyroidism produces thin perspiring, easily flushed skin, urticarial attacks, pigmentations, distrophies of the nails, keratinization and pruritus.

The relationship of other ductless glands and their internal secretions to skin disorders is not definitely established, yet a number of clinical observations are recorded to substantiate such relationship.

Scholtz points to the well-known association of pathological changes in the adrenal glands with the Addison bronze-like skin discoloration and purpuric rashes, as well as the successful treatment of some cases of vitiligo with an extract of suprarenal glands.

The disorders of the hypophysis are manifested by a symptom complex of acromagaly, fibromatous growths, warts, alopecia in men and hypertrichosis in women.

To the sex glands Scholtz attributes manifold cutaneous disorders: skin changes after castration, herpes progenitalis, erythema multiforme, urticaria, vicarious hemorrhages under the skin and the nails associated with the disturbances of menstruation, types of eruption described under the name of dermatitis dysmenorrhoica—, pigmentation of the linea alba and the nipple, chloasma uterinum, and impetigo herptiformis occurring in pregnancy, and a tendency to hypertrichosis, and acne rosacca in the climacteric period.

The frequent observance of disorders of internal secretions in a very large group of angioneurotic dermatoses, such as Raynaud's local asphyxia, symmetrical gangrene, sclerodermia, angioneurotic edema, herpes and dermographia, is highly suggestive of the close association and correlation of the sympathetic vasomotor nervous apparatus and of the ductless glands.

Pulay points out that the endocrine glands, and especially the gonads, have a certain influence on the skin. We see that seborrhea becomes more marked at puberty, that infection with microsporon audouini in children is nearly incurable but in puberty it disappears without any treatment.

All kinds of skin disease may be influenced by menstruation. Seborrhea often disappears during pregnancy. In myoma of the uterus loss of hair has often been observed. Scleroderma beginning at the menopause has been described.

All these observations point to the existence of relations between the skin and gonads.

Feldman states that many dermatoses are frequently found in patients with endocrine disturbances and are occasionally benefitted by endocrine treatment.

There is justification in the general belief that dermatoses may be due to disturbances of puberty and the sex organs.

Itching of the skin is given as the first sign of pregnancy. Eruptions occur during the life changes and disappear with the establishment of puberty. Acne invariably begins with the onset of puberty and, with very few exceptions, disappears with its termination.

The extreme frequency of hyperglycemia in pustular acne points to an endocrine origin of the condition.

According to Feldman, the skin symptoms of gonadal dysfunction are as follows: There is a very fine infantile skin in the male and an atrophy from lowered activity of the glands in old age. It causes a thinning of the hair in the male and hypertrichosis in the female. Most of the cases of hypertrichosis occur in unmarried women. It would appear that normal sexual life inhibits this condition. In 146 cases, 131 patients had more or less severe menstrual disturbances. In hypertrichosis the ovaries do not act alone, there is a correlation between them and the pituitary, pineal and the suprarenals. This is true of most of the conditions due to endocrine dysfunction.

There is a comparatively large group of pathological changes in the skin which are known to be due to thyroid dysfunction. Those found in hyperfunction are hyperhydrosis, especially of the axillae, melanosis, urticaria, prurigo, pruritus, chronic alopecia, hyperkeratosis, and dystrophy of the nails.

In hypothyroidism, there is a falling of the hair, or it may remain sparse and undeveloped. Feldman had under observation two cases of total alopecia in children with mild symptoms of cretinism, in which the alopecia was cured in the course of several weeks by small doses of thyroid extract. One case occurred in an Italian girl of fifteen, who as yet had not menstruated and presented mild symptoms of cretinism. The alopecia disappeared rapidly under treatment with thyroid, pituitary and ovarian extract. She was completely amenorrheic, however, three years later in spite of continued treatment.

In myxedema, the clinically swollen skin is due to profound pathological changes. The cutis is atrophied, the elastic fibres are swollen, the collagenous bundles become attenuated and almost disappear. Both these structures become converted into a homogeneous mass, similar to the substance found in the thyroid. There is an obliterating endarteritis and occlusion of the lumen of the glands.

Davidson considers man as old as his arteries and as efficient as his endocrines. To make his point clear, he studied the embryology of the skin and its relation to the endocrine glands. From the ectoderm, or outer layer of the embryo, the skin, nerves, the anterior pitu-

(Concluded on page 121)

Fracture of the Forearm in Children

JACOB GROSSMAN, M.D.
New York

In the May, 1921, issue of the *Journal of Orthopedic Surgery*, the writer published a report of a study of two hundred cases of fracture of the forearm in children. This report is a continuation of that study and is based on a review of an additional three hundred cases, a total of five hundred in all.

The most common seats of fracture are in the middle or lower thirds of the bones. The fracture of the radius is often a little higher than the fracture of the ulna.

The arm cannot be used without pain. In a muscular or fat arm with little separation of the fragments there may be no deformity excepting the localized swelling of the seat of fracture. Deformity will be determined by the displacement of the bones. If the seat of fracture is not obvious, the forearm should be grasped by the two hands and gentle but firm movement attempted, to determine the presence of abnormal motion and crepitus. Motion should be attempted in all directions, for the bones may be fractured and yet be locked when the movement is made in one direction only.

Incomplete or greenstick fracture is a partial break across the bone, with bending at the seat of fracture. In children between the ages of two and fourteen years, injury to the bones of the forearm results usually in a greenstick fracture. Either one or both bones may be broken. One bone may be completely fractured while the other may be incompletely fractured.

Deformity is very evident. Pain and tenderness at the seat of fracture are present. Crepitus is absent unless one bone is completely fractured. Children having these fractures are often seen a week or two after the injury. They are said to have sprained the arm and are unable to use it well at the time of their visit. Careful inspection will reveal the characteristic bowing at the site of a greenstick fracture. Slight callus will be present if a little time has elapsed since the injury.

Fracture of the Shaft of the Radius

This is usually caused by direct violence. The fracture occurring at any part of the shaft presents no unusual symptoms. The head of the bone does not rotate with the shaft unless the fragments are locked. Abnormal mobility, pain and crepitus are present. The displacements vary with the situation of the fracture. Pronation and supination will be limited and painful. A fracture of the radial shaft at the junction of the middle and lower thirds will sometimes suggest very plainly the lateral deformity in a Colles' fracture, the prominent ulna and apparently shortened styloid process of the radius being in evidence. If the fracture occurs in the upper third of the bone, the displacement of the upper fragment will be considerable.

Separation of the Lower Epiphysis of the Radius

The lower radial epiphysis unites to the shaft of the bone at the twentieth year. Previous to this age a separation of the epiphysis is not uncommon. Many cases of separation of the epiphysis are thought to be Colles' fracture and they are treated as such. There is very little difficulty in maintaining the fragments in position in separation of the epiphysis. The epiphyseal separation requires a short time of immobilization.

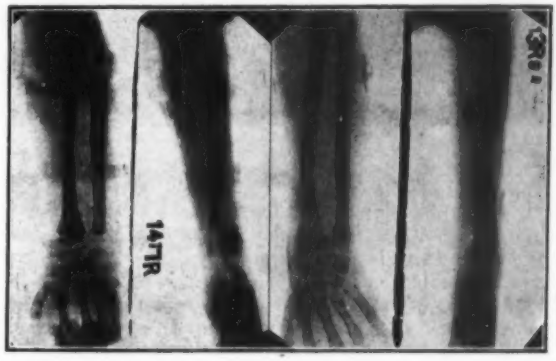
A soft, cartilaginous crepitus is felt. The deformity is quite constant. A prominence near the carpus on the dorsum of the wrist and a prominence higher up on the palmar surface of the wrist. There is almost no tendency to reproduction of the deformity after it is once reduced.

Fracture of the Shaft of the Ulna

Occurs usually because of a direct blow received upon the arm raised for protection. It is more uncommon than fracture of the radius.

Localized tenderness, pain upon attempting to use the forearm, obscure discomfort in the arm after an injury, these may be the only signs of fracture. There is no general swelling of the forearm.

Ordinarily, there will be very little displacement, because the radius serves as a splint for the broken bone. Crepitus may be detected if the ulna is grasped between the fingers, placed on either side of the fracture and motion is attempted. The shaft of the ulna being subcutaneous throughout its entire extent, the tender seat of the fracture can be easily determined.



Milton M.—Six years of age. Fracture of the lower end of the right radius and ulna. The lower fragments are displaced dorsally and upward.

Mary D.—Complete fracture of the right radius and ulna in the middle third of the shaft. The fracture of the radius is at a slightly higher level than that of the ulna. There is slight palmar bowing.

Fracture of the Coronoid Process of the Ulna

It is associated with backward dislocation of the ulna. It is a rare accident. Only two cases being encountered in a large series of fracture of the forearm in children. A very small fragment is broken off and it is not much displaced. If in any dislocation of the forearm backward, recurrence of the deformity after reduction occurs readily, a frature of the coronoid process should be suspected. This will be confirmed by the discovery of a small hard mass in front of the elbow joint just above the insertion of the brachialis anticus muscle; roughly, a finger-breadth above the bend of the elbow. This small hard mass may give crepitus upon being manipulated. It is very difficult to detect this fragment of the coronoid process even under the most favorable conditions. The X-ray may discover it.

To recapitulate, complete fracture of the lower end of the radius is not as common as incomplete or greenstick fracture. Colles' fracture, commonly encountered in adults, is not common in children. In a series of five hundred cases of fracture of the forearm in children there were comparatively few which presented either clinically or in the X-ray findings, the classical picture of Colles' fracture. There were however, a number

of subperiosteal fractures occurring at the lower end of the radius. These cases presented themselves with a history of having fallen, striking upon the outstretched hand. Examination usually revealed slight swelling, disability and marked localized "pencil" tenderness. Ecchymosis, when present, was very slight. Crepitus, false mobility and deformity were never present.

Another lesion which was fairly common and which

Edema, blebs and Volkmann's contracture from the application too tight-splints.

occurred at the lower end of the radius, was a separation of the radial epiphysis. Epiphyseal separation of the radius has always been reported as of rare occurrence. Pfaundler and Schlossman have reported seeing two cases in a series of one thousand fractures. In our series there were seventeen cases or about four per cent of the five hundred cases. No doubt epiphyseal separation is a fairly common condition. It is very readily overlooked, especially when the separation is very slight and the symptoms very mild. In these instances it is treated as contusions or sprains. Careful X-ray study will assist one in making a diagnosis. The separation may vary from a slight degree to a very marked one. Where there is slight separation the symptoms are very mild. Chief amongst the symptoms are pain, localized tenderness and in very severe cases crepitus, deformity and false mobility. The deformity was so marked in one of our cases, that it resembled the "silver fork" deformity commonly seen in the typical Colles' fracture in the adult. The crepitus as a rule is soft and does not resemble that usually found in fractures. Three of the cases were complicated by infraction of the ulna. The symptoms resulting from the infraction were very mild.

The vast majority of the cases had sustained greenstick fractures of one or both bones of the forearm. The x-ray findings in these cases were very much alike. Complete fractures were present in a number of instances.

Etiology

Of the five hundred cases, three hundred and seventy were in males and one hundred and thirty in females. The ages varied from six weeks to thirteen years. There were one hundred and eight below five years of age, two hundred and thirty-four between six and ten years of age, and one hundred and fifty-eight between eleven and thirteen. Of those below five years of age there were fifty-five of both bones, fifty-three of one bone, of which forty-two were of the radius and eleven of the ulna. One had a separation of the lower radial epiphysis. Of those between six and ten years of age, there were one hundred and thirty-seven of both bones and ninety-seven of one bone, of which eighty-six were of the radius and eleven of the ulna. Six had a separation of the lower radial epiphysis. Of those between eleven and thirteen years of age, there were sixty-nine of both bones, eighty-nine of one bone, of which eighty-three were of the radius and six of the ulna. Ten had a separation of the lower radial epiphysis.

The ages at which fractures occurred more commonly, as shown by this series, are between six and ten years, two hundred and thirty-four of the series having occurred during this period. The next most frequent occurrence was between eleven and thirteen, one hundred and fifty-eight having occurred at those ages. The smallest number occurred below five years of age, one hundred and eight being the number.

Between six and ten years of age both bones were more frequently fractured, one hundred and thirty-seven had sustained fracture of both bones, ninety-one had sustained fracture of one bone. Between eleven and thirteen years of age, one bone was more frequently fractured, eighty-nine of all occurring at these ages being of one bone. Sixty-nine were of both bones. Below five years of age there were fifty-three of one bone and fifty-five of both bones.

In the entire series both bones were more often fractured, there being two hundred and sixty-one. Two hundred and thirty-nine of the patients had sustained fracture of one bone.

In the majority of instances the fracture was the result of a fall, the patient striking either upon the outstretched hand or upon the forearm. In a number of instances there was a history of the forearm having been struck a blow, as in one case where a swinging door, striking the forearm, fractured both bones. A slight knock or a mild trauma produced fracture in a number of instances. History of former fracture was elicited in five cases. There were no constitutional disturbances or pathological lesions present to account for the recurrence of the frature.

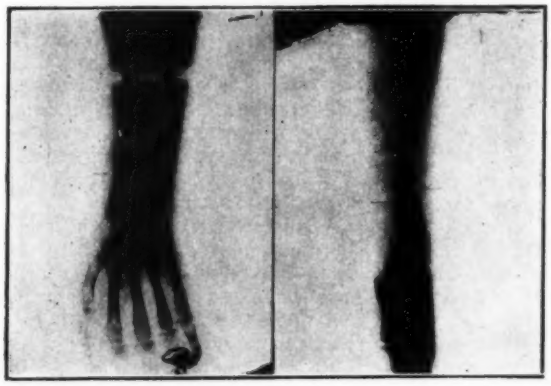
Leo K. three years of age.—Complete transverse fracture of the lower third of the left radius. Slight palmar and ulna bowing at the site of the fracture. Callus formation about the site of the fracture, the result of a previous fracture.

Symptomatology

Subjective: These patients were presented with a history of having sustained an injury. In a few instances, especially in the younger children and infants, the parents were not aware that an injury had been sustained. Pain and restriction of motion were constant symptoms. The pain was especially evident when an attempt to manipulate the forearm was made. The disability manifested itself in what appeared to be a paralysis of the upper extremity, the latter hanging

limply at the side. This was especially so in infants and younger children. Any active movement was painful.

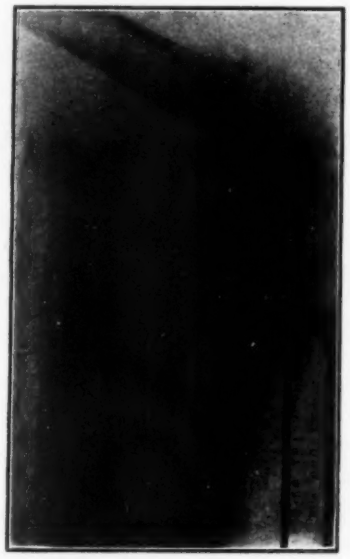
Objective: Swelling, ecchymosis and deformity



Mollie G.—Fracture of both bones of the forearm, about one inch above the wrist-joint.

were present in a large number of instances. The swelling and ecchymosis were usually localized to the region of the fracture. The deformity present was angular in character, the angle being directed anteriorly, as a rule.

In those who had sustained a subperiosteal fracture, deformity was absent. It is this type of fracture that is commonly overlooked. The absence of crepitus, false mobility and deformity often mislead one and a diagnosis of sprain or contusion is made. Ecchymosis is not common and when present, manifests itself as a slight discoloration. There is usually slight swelling. The characteristic objective symptom upon which diagnosis can always be made in subperiosteal fracture is "pencil" tenderness. This tenderness is localized to the site of the fracture. It is present in all cases and persists for many weeks after the fracture had been sus-



Jacob G.—Fracture of the upper end of the ulna.

tained. Very little callus formation occurs during the healing of this type of fracture. This is probably due to the fracture being subperiosteal.

Fracture of the shafts of the bone was mainly of the torsion, greenstick or bending variety. False mobility was present in a number of instances. Crepitus was elicited in a number. Tenderness was present in all the cases. It was of the "wincing" type, so commonly present in bone injuries. It was usually localized to the site of the fracture.

Treatment

The management of fractures in children differs considerably from that in adults. The greater intensity of the healing processes in the former requires a shorter period of immobilization. The tender skin, of the infant and child, the movable cover of fat which envelopes the bones makes an exact therapy very difficult. In

Girl—Plaster-of-Paris bandage dressing for fracture of the shafts of both bones of the forearm where the site of the fracture is at the middle or high up.

Boy — Plaster bandage dressing for fracture for one or both bones of the forearm, where the site of the fracture is in the lower part.

our experience we have found plaster-of-Paris bandages more efficient than splints. The affected parts can be controlled readily and accurately without the danger of pressure blebs and ulcers, the result of applying splints too tightly. We have had many cases referred to us in which several hours after the application of splints, blebs and ulcers had appeared. Another disadvantage of splints, especially in very active children, is that there is a tendency for them to fall off or be displaced. A properly applied plaster bandage will obviate these disagreeable mishaps.

Where there is a fracture of the shafts of both bones, or of the shaft of the ulna or radius alone, the deformity, should one be present, is reduced. Plaster-of-Paris bandages are then applied, extending from the middle of the arm to the metacarpophalangeal joints, leaving the fingers unconfined. The elbow is held at a right angle and the forearm midway between pronation and supination. The patient should be encouraged to exercise the fingers actively from the very first.

The plaster-of-Paris bandages are retained for about ten days at the termination of which they are divided laterally, so that they can be utilized later. The limb is then removed, and after being baked, passive move-

ments of the fingers, wrists and elbow are carefully given. The limb is then replaced in the anterior posterior plaster bandages. The following day and daily thereafter the forementioned treatment is continued. After one week of this treatment, active movements and finally exercises should be added. This routine is followed until the movements of the fingers, wrist and elbow are normal and free from pain. This is usually about three to four weeks after the fracture had been sustained.

One must always bear in mind that ununited fractures of the radius are not uncommon, undoubtedly the result of improper fixation of the elbow-joint, pronation and supination being insufficiently guarded against. Also that there is a tendency for the four fractured surfaces to be drawn towards one another and for union to occur with complete loss of supination and pronation. This can be avoided by fixing the forearm so that supination and pronation are impossible. Fusion of the fractured ends can be avoided by preventing all lateral pressure on the bones after proper coaptation. To be successful one must obtain proper reduction and proper immobilization. A pad between the shafts as recommended by many is unnecessary as it could not separate the bone ends without exerting injurious pressure upon the circulation.

When the fractures occur at the lower third of the bone or bones, the plaster-of-Paris bandages are applied extending from the elbow to the metacarpo-phalangeal joints, that is, to the knuckles behind and the transverse crease of the palm in front. The fingers are left unconfined and the patients encouraged to move them. The forearm should be supported in a sling.

After-care

Fractures of one bone of the forearm present as a rule, little difficulty. Union of the lower end of the radius or of the upper third of the ulna is usually firm enough to allow great freedom of relaxed movement in eight or ten days, and active movement may almost always be indulged in with ever-increasing freedom from the end of two weeks, provided it is painless and no swelling or tenderness follows use.

As the site of the fracture ascends the radius or descends the ulna the time required for union to occur increases steadily, till a maximum is reached for the lowest inch of the ulna, where a fracture frequently requires two weeks to unite.

Until union is complete in fractures of both bones the main thing to do is to attend to the circulation of the forearm and arm and to see that the fingers remain supple. Massage of the forearm should only be applied with an anterior support in situ. One of the most efficient methods of applying proper movement is to begin with slight pronation of the forearm and flexion of the elbow follows naturally; attempt flexion without this preliminary and endless trouble will ensue.

1018 East 163d Street.

Resuscitating Victim of Carbon Monoxide Gas with Inhalator

J. M. Lewis, of Pittsburgh, Pa., is shown reviving Leonard Spiker, a garage employee overcome by carbon monoxide gas from the exhaust of an automobile. Lewis is shown applying the Schaefer hand method of artificial respiration while the patient is assisted in regaining consciousness by administering oxygen and carbon dioxide from the Inhalator, the device for resuscitation developed by Doctors Yandell Henderson and Howard W. Haggard of the Yale University Medical School.—*Photo by Underwood and Underwood.*

Public Health Service Hospitals

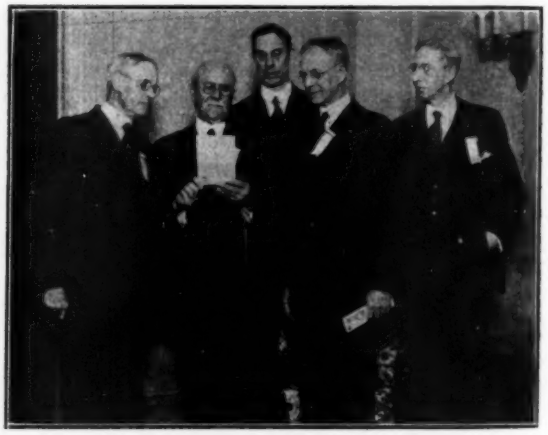
The United States Public Health Service is engaged in so many activities relating to the prevention of disease and the promotion of physical welfare, that the public in general have but little idea that this Bureau of the Government is also one of the largest hospital operating agencies in this country.

The United States Public Health Service had its origin in caring for sick and disabled American seamen, so that this is the basic and oldest activity of the service. At the present time, the United States Public Health Service owns and operates 25 United States Marine Hospitals located in large seaports on the Atlantic, Pacific, and Gulf coasts, and also on the Great Lakes and Mississippi River.

During the week ending January 8, 1927, 3,195 beds in these 25 hospitals were occupied by patients of the service.

High Incidence of Deafness

The extent of deafness discovered in recent surveys among the children of New York State indicates that there are more than 3,000,000 hard-of-hearing children in the United States.



Leaders of the Medical Profession

Photo shows left to right: Dr. Louis S. Wilson, Mayo Found., Rochester, Minn.; S. W. Welch, St. Health Officer, Montgomery, Ala.; Dr. Ray Lyman Wilber, Pres. Stanford Univ., Palo Alto, Calif.; Dr. M. W. Ireland, Sur. Gen. U. S. Army; Dr. Hugh S. Cummings, Sur. Gen. U. S. Pub. Health Service.—*Photo by Underwood and Underwood.*

Our Schools and Personnel

In 1925, there were 80 medical schools in the United States (the same as in 1924)—74 non-sectarian (i. e., regular), 2 homeopathic, 1 eclectic, and 3 nondescript. Of these schools, 74 are accredited institutions, while 6 are rated "class C," and 5 of these are not recognized by the licensing boards of 40 of the 48 States.

Of the 18,200 medical students in 1925 there were 910 women, 44 less than in 1924.

In 1925, there were 147,010 physicians in continental United States, or approximately 1 physician to each 770 persons as compared with 1 to 724 in 1923, 1 to 720 in 1919 and 1 to 640 in 1913. The State having the lowest proportion of physicians to population was North Dakota, with 1 physician to every 1,386 persons, while the State having the highest was California, with 1 physician to every 455 persons. In the District of Columbia the proportion was 1 to 242.

Management of the Alimentary Tract in Pneumonia

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Brooklyn, New York

Between the group of cases of pneumonia which die no matter what treatment they receive and the group that gets well anyhow, lies a considerable group whose mortality rate can be influenced favorably by treatment along right lines. Such treatment does not mean specific drug therapy, for no specific drug treatment for pneumonia has ever been or is ever likely to be found; and biological specific treatment, although bright with hope, has not yet emerged from the experimental stage. The best treatment now available consists in physiological support.

Physiological support must not be confounded with symptomatic treatment, for symptoms do not always call for ablation, being often manifestations of constructive activity of the organism; nor with expectant treatment, which is negatively correct but often deficient positively; and it must carefully exclude meddlesome therapeutics. Its principle dominates or should dominate all therapeutics.

Particular opportunities for physiological support in pneumonia present themselves in the management of the alimentary tract, from which threaten toxemia, tympanites and reflex nervous disturbances. After securing rest in bed, the first therapeutic duty in this disease would seem to be proper management of the alimentary tract. In this management we have to deal with questions of diet, catharsis and disturbing medication.

Diet

In feeding patients during the active period of pneumonia we are not under the necessity of maintaining full nutrition because that period is regularly short. We can with advantage and safety reduce the rations of protein and fuel to half the ordinary requirements in the average case; and in severe and complicated cases we should make greater, perhaps much greater reductions. The rations of the salts call for special consideration because of the shortage of calcium which seems to be regularly present in pneumonia and the tendency to acidosis inherent in febrile diseases. The water ration should be liberal to facilitate free elimination, but on the other hand if the heart shows weakness, the indication to favor the heart by restricting fluids is present. The unqualified order to "force fluids" should not be given in this disease. As regards the general quality of the diet, it should first of all be fluid and lactovegetarian, that is, should contain besides salts and water only articles from the vegetable kingdom with addition of milk and its products. Other animal foods are contraindicated on account of the danger from intestinal toxins. Animal broths and raw egg albumin are particularly objectionable, as are the patent foods which feature the words "peptone" and "peptonoids". The growth of acidophilic as against saprophytic types of bacteria should be encouraged in the intestine. When milk is given it should be modified so as to safeguard against indigestion. The dietary may well be safely limited to modified milk, cereal gruels, strained fresh fruit juices, salts and water. The following is my standard full diet for pneumonia.

Full Pneumonia Diet

At 7 a. m.—Give 7 ounces (210 gms.) of a two-to-one mixture of milk and barley water or other specified cereal decoction, to which has been added 5 grains (1/3 gm.) of sodium chloride and 5 grains (1/3 gm.) of sodium bicarbonate.

At 8 a. m.—Give 7 ounces (210 gms.) of water in which has been dissolved 10 grains (2/3 gm.) of calcium chloride or lactate.

At 9 a. m.—The same as at 7 a. m.

At 10 a. m.—Give the following mixture. Strained juice of orange, grape-fruit or pineapple, 2 ounces (60 gms.) lactose, 2/3 ounce (20 gms.), and water 5 ounces ((150 gms.).

At 11 a. m.—The same as at 7 a. m.
At 12 m.—The same as at 8 a. m.
At 1 p. m.—The same as at 7 a. m.
At 2 p. m.—The same as at 10 a. m.
At 3 p. m.—The same at at 7 a. m.
At 4 p. m.—The same as at 8 a. m.
At 5 p. m.—The same as at 7 a. m.
At 6 p. m.—The same as at 10 a. m.
At 7 p. m.—The same as at 7 a. m.

If desired the three fruit juice feedings may be given in the night instead of in the day.

This dietetic prescription supplies daily about 38 grams of protein, fuel of a value of about 1200 calories, about 2 grams each of sodium chloride, sodium bicarbonate and calcium chloride, in addition to the salts naturally present in the articles of food given, and about 2700 grams, or 90 ounces, of water. It is a maximum diet, except as regards water, which might in some cases be increased in amount, although much more frequently lessening of the amount of fluid is called for.

Modifications of this full diet are often required, as in the following conditions.

When the disease is severe it may be desirable on general principles to reduce the number of the milk feedings or omit them altogether; and regularly near the expected time of the crisis, except in mild or very favorable cases, the diet should be reduced, usually by omitting the milk and restricting the fluids. Extra fruit juice feedings may be given in place of specified milk feedings. A diet of water and strained orange juice with addition of calcium and sodium salts is the diet of safety.

If signs of heart failure appear, as rapid pulse, irregular heart action or pulmonary edema, the fluid should be restricted and perhaps the milk omitted.

Diarrhea and tympanites call for reduction of the diet to barley water, water, orangeade and salts, or to water and salts alone, or to barley water alone. Patients fed according to the plan above described rarely show diarrhea or tympanites.

Catharsis

The delusion that catharsis has a therapeutic value *per se* was fostered by the old humoral pathology; it still seems to exert a considerable influence on medical practice, judging from the extent to which catharsis is routinely employed in the treatment of many diseases; it works particular harm in pneumonia.

While regular daily evacuations of the bowels are conceded to be desirable in normal conditions, it is well known that nature frequently constipates for a constructive purpose, as in typhoid fever and appendicitis. That cathartics by increasing the fluidity of the colonic contents favor production and absorption of intestinal toxins is an inference from certain observations which have been made. That the development of tympanites in pneumonia may be favored by the use of cathartics is a conclusion based on clinical observation as well as

a priori reasoning. That the frequently unstable condition of the heart in pneumonia renders particularly dangerous the vagus stimulation which accompanies artificial evacuations of the bowels seems good physiology. That the bowels may remain unmoved for a considerable time more safely with the diet above described than with one which contains preparations of animal flesh and eggs, is not difficult to understand in the light of our knowledge of the biology and biochemistry of the intestinal canal.

The above considerations suggest as a safeguarding policy in management of the alimentary tract in pneumonia, conservatism in the use of artificial bowel evacuants. This does not mean that cathartics or enemas should never be used in this disease; it means that they should not be used in routine fashion but only to meet special indications for their use other than the fact that a daily evacuation has not taken place. It is held that with moderate constipation, the diet being as above described, there is less danger of the occurrence of toxemic disturbances, of tympanites and of heart failure, than when regular daily evacuations are artificially induced. It is held that purgation, especially with salines, even at the beginning of the disease, can predispose to toxemia and tympanites; and that later in the disease it may precipitate heart failure. The dangers from constipation, within limits, are considered less than those from routine purgation.

My positive practice in regard to evacuating the bowels in pneumonia may be summarized as follows: If the patient when first seen has not had a satisfactory movement within twenty-four hours, and the disease is in a comparatively early stage, and no contraindications are present, an enema is given; after that attempts to move the bowels during the active stage of the disease are made only when special indications appear. Among such special indications are tympanites which regulation of the diet does not correct, and an uncomfortable sensation of fullness in the rectum complained of by the patient, both of which are of comparatively rare occurrence with the diet above mentioned. In fact, it is the rule for patients fed as above described and otherwise managed in accordance with principles laid down in this paper, to show soft abdomens and to be free from abdominal discomfort in the absence of bowel evacuations for considerable periods. It often happens that evacuations take place naturally, and these do not seem to disturb the patient as do the artificially induced ones. For moving the bowels when needed I use a simple or a soapsuds enema or an enema of a pint of warm water in which has been dissolved a dram and a half of powdered oxgall. Regularly on the second day after defervescence, if the bowels have not moved naturally, an enema is given. If there seems to be impaction of feces, which is sometimes found in cases which were constipated from the beginning of the disease and were not relieved because of their critical condition, the following procedure is used in the early convalescent period. An ounce of castor oil is given by mouth and at the same time six ounces of warm olive oil are injected into the rectum, to be retained. Four hours later, if a satisfactory movement has not taken place, the fel bovis enema above described is given. Two hours still later, if the condition calls for it, a colonic irrigation is given. In cases of severe and obstinate tympanites pituitrin has been found to act beneficially.

The policy of not moving the bowels in pneumonia unless special reasons exist for doing so, was recognized and adopted by me about the beginning of the year 1913, and since then I have followed it strictly in my treatment of this disease. The results seem to justify this policy. In a continuous series of cases covering six years, treated by me in accordance with this policy in one hospital immediately after 1913, the gross mortality was less by more than one-third than in a similar series treated by me in the same hospital in the six years immediately preceding 1913, in which this policy was not followed. A more recent series of cases gives an even better showing.

Disturbing Medication

The proper management of the alimentary tract requires avoidance of medication disturbing to it. In dealing with this phase of the subject I realize that I am on difficult ground, for everyone would not agree on what constitutes disturbing medication. Medical traditions, individual pride of opinion, obsessions in favor of particular treatments, to say nothing of insufficient knowledge of normal and pathological physiology, tend to dull observation and confuse judgment. Therefore, the statements made here regarding medication disturbing to the alimentary tract are made as statements of opinion, and their intrinsic reasonableness is relied on to give them authority. The following are cited as examples of such disturbing medication:

The routine use of purgatives. This has been discussed in the preceding section. The practice of beginning treatment with a dose of calomel followed by a saline purge, which has had an extensive and long continued vogue, appears a flagrant example of this disturbing medication.

"Digitalizing the heart." This procedure, which more or less disturbs the alimentary tract, can be justified only by greater good to the circulation; but its value in the treatment of the heart failure of pneumonia and in the prophylaxis of heart failure in that disease, is questionable.

The use of "cough mixtures". While opiates have a restricted and special use in pneumonia, and in particular, to quiet a very harrassing dry cough early in the disease, the "mixtures", especially if they contain "expectorants", can disturb the alimentary tract without compensating benefit.

It may be said that any medication which disturbs the alimentary tract in this disease should have extraordinary value to justify its use; and there seems to be very little such medication used in pneumonia which has extraordinary value. Fortunately it is possible to meet many important emergencies in pneumonia for which medication in the present state of our knowledge is indicated, by using agents which do not disturb notably the alimentary tract.

In conclusion I wish to emphasize the supreme importance in therapeutics of the principle of physiological support. We become better physicians as we learn to harmonize our therapeutic activities with this principle.

1218 Pacific Street.

Radio Medicine

One of the services rendered by the United States Public Health Service, in providing medical advice by radio to vessels at sea, has been steadily increasing in volume since its inauguration about four years ago.

During 1926, one station of the Service handled 57 such cases. Among the cases handled by this station were:

"Blood poisoning, severe rheumatic symptoms, appendicitis, swollen glands, stomach trouble, conditions causing delirium, chills and fever, toothache, high fever accompanied by vomiting, infected wounds, severe bleeding following a tooth extraction, obstinate constipation, injuries caused by accidents including a probable fracture of the base of the skull, unconsciousness due to oil fumes, acute indigestion, electric shock, severe burns and asthma."

Some Observations and Deductions on the Tonsil Question *

DUNBAR ROY, M.D.
Atlanta, Ga.

A few days ago, I read the following facetious remark in one of our daily papers; "The proof of willpower is the continued possession of your tonsils."

The relationship of the tonsil to certain systemic diseases is still in the empirical stage. We mean by this statement that so far as concerns our etiologic knowledge there has been no laboratory test or objective findings to warrant us in the statement that such and such a tonsil is diseased or that its removal will produce a relief of certain morbid conditions.

Just as we blindly wander through many of the realms of treatment of certain diseases, so we are blindly wandering in trying to obtain some definite facts as to when tonsils are diseased and when they are the cause of certain systemic conditions. Heart failure as the cause of death and toxic condition as the cause of certain obscure physical ailments are terms which have covered the medical ignorance of many so-called crudite physicians.

The medical sins committed by the teeth, tonsils, and appendices are numbered like the sands of the shore—without number. That there is a close relationship and even an interrelationship between the tonsils and other parts of our physiological economy cannot be doubted, just as close clinical and laboratory observations have shown the interrelationship between the hormones of the various ductless glands as described by the writings of Abbey of John Hopkins, Cannon of Harvard, and Stockton of Cornell.

If there could have been the same clinical and laboratory study of the tonsils just as has been done in the study of these ductless glands, we would ere this have obtained more definite results. The trouble has been in the consideration of the tonsils as inferior organs of the body, and because of their ease of inspection they have not received sufficient attention in their clinical and laboratory study—or even as regards their physiological importance in the animal economy.

The ductless glands are not open to optical inspection but must be removed by surgery before they can be anatomically studied.

Experimental physiological tests are being conducted by various workers on the functions of the hormones of these different ductless glands, but up to the present we have heard of no conclusive experiments being conducted to show the function and interrelationship of the lymphoid tissues denominated the faucial and naso-pharyngeal tonsils. A few experiments have been made in an effort to throw some light upon the function of the tonsils, but so far many of them have been contradictory and there is no unanimity among these physiological experimenters. The writer makes bold to assert that future years will accord a more important place to the function of the tonsils in the physiological economy than seems to exist at present and that before these organs are ruthlessly removed, a more thorough examination will be made to determine the advisability of their extirpation.

The function of the tonsils has not as yet been determined. Arguments exist with a great deal of plausibility attributing both secretory and excretory function to these lymphoid bodies. That there is a very close connection between them and the lymphatic system, especially in the region of the neck, nasal, and sinus cavities, no one can deny, and this very connection or relationship demands that due consideration be paid to the tonsillar function before ill advised operations for their removal are performed.

It is appalling to observe how frequently tonsils are removed by men in every domain of the medical profession whether or not possessed of the requisite clinical and operative experience, or even cognizant of the various abnormalities which exist in the pharynx itself. Nor are such practices confined to this class of men, for inexperienced young specialists frequently produce a similar surgical havoc among those who have not the intuition to recognize the difference between operations of necessity and operations for monetary gains. There is scarcely any operation known to the writer which produces such marvellously good results as a well performed tonsillectomy, but unfortunately it is too easy to hear of the good results and too infrequently to hear of those which are less fortunate. This article is written in no sense in a spirit of "better than thou," for I am keenly conscious of my own mistakes in the past, but after many years of active clinical work one very readily sees his own mistakes as well as those of others. In the early years of my practice I have performed many so-called "bum operations," and even later after more extended experience there have been many tonsillectomies of which I could not be proud. Such is probably the experience of every conscientious operator, but I have the satisfaction of knowing that none were ever performed without due study and thoughtful consideration for the future welfare of my patient.

What are some of the indications for the removal of tonsils? This question is more easily answered in the case of children than in adults. It is in the latter class of cases that we obtain our most brilliant results and few errors are made in the thorough removal of adenoids and tonsils, especially since these rarely exist independently of each other. It is unnecessary to discuss the indications for operation in children nor should anyone at the present day write upon the advantages of any special operative technique for the accomplishment of this result. And yet the writer cannot but commend the wire diathermy method as mentioned by Dr. Buff and Dr. Equen a few evenings ago.

Statistics are said to be unreliable and yet it is our only means of gaining a comparative study. The examination of children before tonsillectomy and several years after is the only way to recognize the benefits of such an operation. Workers in the Mayo Clinic and Dirk in Rochester, N. Y., have published a very interesting series of cases along this line with the conclusion that the good and indifferent results are almost equally divided except in these particulars—the benefits to previous middle ear involvement, the improvement in systemic metabolism and the relief of catarrhal colds in the head and sinuses. Certainly a goodly number of qualities to justify the operation.

In children it is not the question whether or not the tonsils are diseased but whether their presence could

* Read before the Fulton County Medical Society in March, 1927.

be producing a train of conditions which can be recognized by the astute clinician.

The indications for the removal of tonsils in the adult is not such an easy proposition. Physical ailments in this class attributable to the tonsils are legion. The writer is not imbued with the dictum that all tonsils in the adults should not be removed nor even that all should be removed. The great question is to have the knowledge as to when this operation should be performed. That most brilliant results in the relief of certain bodily ailments frequently follow a tonsillectomy is an admitted fact and yet negative results have many times been the experience of the conscientious clinical observer. We speak of removing diseased tonsils. As Shakespeare says, "Ah, there's the rub—" Can we at present diagnose a diseased tonsil? Clinically, that is frequently done but after all this is but the objective interpretation of each observer.

Several years ago Dr. French of Brooklyn, N. Y., devised a method of diagnosing just this point. It consisted in the transillumination of the tonsil with a box electroscope. Certain deep shadows indicated a diseased condition. Others tried this but found it unreliable. The trouble was that you could not transilluminate the tonsil until it was too late to determine the necessity for the operation. The most frequent diagnostic method used to-day is pressure upon the tonsil with elimination of secretion from the crypts. This also is exceedingly unreliable. Pressure upon any tonsil will produce a yellowish white exudate from its crypts, especially the one leading into the supra-tonsillar fossa. This is not pus, as is frequently told the patient, but is the normal secretion coming from the lining membrane of the crypts themselves, and the microscope will show some pus cells, lymphocytes, crystals, epithelial cells and micro-organisms. The deeper and more embedded is the tonsil, the more of this exudate appears under pressure. Frequently these crypts harbor decomposition products, producing thereby a very offensive breath. Twenty-five years ago it was the writer's habit to cauterize these crypts with the electric cautery and to-day numbers of these patients will tell you that they have had no more trouble. But complete tonsillectomy is by far the best method for the present day treatment. Then, is there any method by which we can diagnose a diseased tonsil? I would answer emphatically—no. If such be the case, then what should determine us in advising the removal of tonsils. So far our experience has been empirical and it is just this point which I would urge the younger laryngologists to study in conjunction with some laboratory man who is willing to see the importance of the subject. Brilliant results follow the complete removal of the tonsils in many cases of neuritis, rheumatism, endocarditis, other heart lesions, kidney diseases and a dozen other systemic conditions. In many cases we fail to relieve the patient although the tonsils in the two cases may show an equal amount of involvement. Surely there must be some clinical or laboratory test which can determine this operative question for us. The writer is not dogmatic in his views, but he only pleads for a more thorough study of the case before the patient is sent to the operating room. How many of us have had cases referred to us for tonsillectomy and had such sent to the hospital, operated upon them the same day without any study of their metabolism, urine, or blood clotting time, in other words lacking a thorough examination. Would any general surgeon remove the thyroid or suprarenal gland until he had taken the time to make a thorough examination and had kept the patient for a few days at least under observation?

Take the question of enlarged cervical glands, especially in their relationship to the tonsils and adenoid tissue in the naso-pharynx. What a fruitful field for research is opened up in the experimental and laboratory study of such cases. The pediatrician is the man who sees these cases in children and how frequently the mother is immediately told that such is due to diseased tonsils. How often are the tonsils removed for this condition only to find that the swelling does not disappear but in some cases the condition is aggravated. What is this relationship? Let some of the younger men get busy trying to elucidate this obscure and interesting question.

What is the relationship between the faucial tonsils and tuberculosis? Should the tonsils be removed in a case of active glandular or general tuberculosis? Several years ago I wrote to Dr. Pottenger of Monravia, Cal., one of our best authorities on tuberculosis, and asked him for his opinion and experience as to the removal of tonsils in tuberculosis. His reply was to the effect that he never advised the removal of tonsils in an active case of tuberculosis and only in suspected cases where there had been frequent attacks of tonsillitis and the tonsils themselves showed a markedly diseased condition. He considered the tonsils guardians against the entrance of tubercle bacilli into the lymphatics. Such may not be the views of other competent observers but surely this question requires deep study before patients are submitted to operations.

These then are some of the questions to be considered which so far have not received the proper study. Finally before we can feel that the operation is entirely satisfactory both to the patient and the operator all local symptoms and objective appearances must be considered. How many of us have operated upon patients where at the time of the operation the appearance of the throat was more than satisfactory and yet months later the same throat gave us a keen pang of disappointment. Distortion of the pharynx, soft palate and pillars can so frequently be seen in patients whose tonsils have been removed. The linear cicatrix at the center of both pillars is by no means uncommon with the best of operators. Ordinarily this is productive of no inconvenience but sometimes in vocalists and public speakers they complain considerably of a drawing sensation in their throats. This condition may also produce a lack of tone in the soft palate with an occasional interference with perfect vocalization.

One of the most frequent after results of tonsillectomy is the development of large vertical bands of lymphoid tissue to the inner side of the posterior pillars. This is what I have denominated compensatory hypertrophy of the lymphoid tissues. These bands of tissue become inflamed and may even resemble an attack of tonsillitis, so painful sometimes is this condition. This is nature's division of labor and it is a well known physiological principle that the destruction of one organ will cause a physiological activity or enlargement of some other tissue. It is in just these cases that the destruction of lymphoid tissue is best accomplished by the use of the X-Ray. For this reason the idea that there will be no sore throat after the removal of tonsils is entirely erroneous, just as much so as the idea that a punctured drum membrane means the loss of hearing. In fact one will find that frequently in adults they complain of sore throat after a tonsillectomy which was not present before the operation, the latter having been performed for some other systemic dyscrasia.

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Diathermy in the Treatment of Gonorrheal Urethritis in the Male

WILLIAM BIERMAN, M.D.
New York

Physical therapy has long been used in the treatment of the Neisserien infection in the male. Such procedures as the applications of heat and of cold, prostatic massage, the passage of sounds, the use of suspensaries, etc.—all come within the scope of physical treatment. Electro-therapy which is a sub-division of the field of physical therapy is of comparatively recent application.

Because the gonoccous is a thermolabile organism, many attempts have been made to destroy it within its human host, by means of heat. It has been observed that occasionally an active gonorrhea has been terminated when an intercurrent infection has raised the systemic temperature.

The optimum temperature for the growth of the gonococcus lies within the range of 95° to 98.6° F. (1). Santos of Lisbon found that exposure of cultures of the organism to a temperature of 43° C (109° F) killed the organism in 76 minutes. At a temperature of 44° C (111° F) an exposure of 54 minutes was required; while at 45° C (113° F) the exposure could be reduced to 30 minutes (2).

The normal temperature of the male urethra, particularly the penile portion, is ideal for the growth of the gonococcus. The usual temperature of this part is between 93° and 94° F (3).

By means of the high frequency current (diathermy) it is possible to elevate the temperatures of certain portions of the male urethra—of the penile portion of the anterior urethra and of the posterior urethra. These sections can be heated to temperatures of about 108° to 114° F.

Santos in experimenting on dogs, subjected the urethra to a temperature of 113° F (45° C) for one hour. These dogs were killed eight days after the experiment. Microscopic sections made of the urethra showed merely an epithilial desquamation. Experimenting upon himself, he found that up to 109° F (43° C) he felt nothing abnormal. Starting at 109.4° F there was a gradual sensation of warmth, increasing to the point of tolerance at 114.8° F (46° C).

The high frequency current is characterized by its relatively high voltage, low amperage and by its high frequency of alternations. The alternating current of commerce as carried by the electric mains—or a direct current which has been changed to an alternating one by means of an inverted rotary converter—is used as the source of the electrical energy. The commercial alternating current has sixty cycles a second, (i.e. the current flows from the positive to the negative pole and back again sixty times a second). By the mechanism of condensers (Leyden jars or mica plate) and a series of spark gaps, the frequency is increased to several hundred thousand times a second. This extremely high frequency accounts for the fact that the patient experiences no electrical sensations. The only sensations felt are those of heat due to the resistance developed within the tissues themselves to the passage of the electric current.

The heat developed within the tissues by the diathermy current not only exerts a harmful effect upon the gonococcus but also creates an active hyperaemia with a consequent increase in the bacteriocidal factors contained within the blood.

There are several ways of applying the high frequency current to the penile urethra. The penis may be plastered down against the anterior abdominal wall as the patient lies on his back. A copious quantity of soap suds is placed between the penis and the abdomen —so that for electrical purposes that organ becomes an integral part of the anterior abdominal wall. A narrow strip of composition metal is placed over the penis, and connected to one pole of the diathermy machine. This metal strip should extend from the meatus, to and slightly beyond the penoscrotal junction. If it is prolonged too far down on the perineum, most of the current will pass from this portion to the other metal electrode used to complete the circuit, and which is placed under the lower back and buttocks. This latter electrode may be of about 8 by 10 inches. The penile electrode should not be bent around the sides of the penis. This would cause the current to pass mainly from the edges of the electrode — particularly if it touched the abdominal wall. The major heating effect would then be lost where it was most desired—in the urethra.

This method is of great value in the treatment of preputial oedema.

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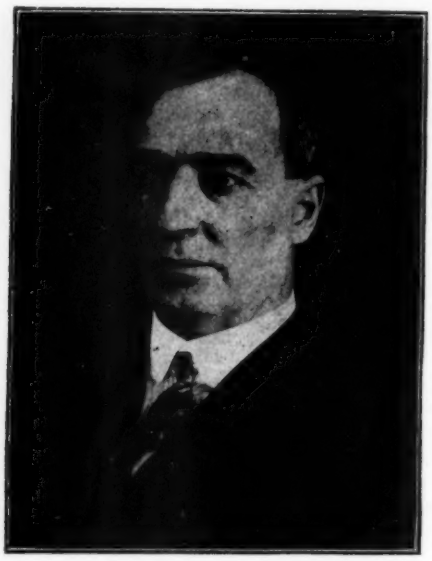

Chicago Physicians Asked to Join Union

Chicago physicians, especially those working for a salary in institutions, have been asked to join the newly formed union made up of doctors employed in the health department, by Dr. M. J. Sullivan, the union's delegate to the Chicago Federation of Labor. The health department physicians formed a union after they had been denied a rise in pay. With the backing of the federation the rise was secured. Photo shows Dr. M. J. Sullivan.—*Photo by Underwood and Underwood.*

given the next day. They found that in a patient presenting himself during the first 72 hours, diathermy may aid in effecting a speedy cure. (4).

In general, these methods of treating anterior urethritis yield brilliant results in the early cases—where the organism has not yet extended beyond the penile urethra into the bulbous urethra. There are many urologists who attest to the value of diathermy. To quote from the personal communication of a colleague—"I can state that I have used diathermia in the treatment of gonorrheal urethritis (anterior) in about twenty cases with very striking results in one half dozen cases. By striking I mean that although a profuse purulent discharge existed, with smears loaded with gonococci, still within three to five days the discharge was gone—smears were negative and subsequent provocative injections of silver nitrate failed to evoke any discharge containing gonococci.

It is easier to apply diathermic heat to the posterior urethra. This may be accomplished by employing a rectal electrode and another metal plate electrode placed over the pubes and lower abdomen. This second electrode may be replaced by a metal girdle as advocated by Cumberbatch. The amount of current used is gradually increased until it reaches the point of comfortable tolerance. It is maintained there for at least one half hour.

By this technic it is frequently possible to cause the second urine specimen to become clear within a few days. The accompanying symptoms of posterior urethritis and prostatitis the frequency, urgency, and tenesmus also disappear.

Epididymitis yields satisfactorily to treatment by means of diathermy. The pain and discomfort may diminish markedly after a single application. A small composition metal electrode is placed under the affected depididymus. This rests upon a small sand bag which is placed upon the thighs. Another similar electrode is placed over the epididymus. This, too, is held in place by means of light sand bags. These electrodes should be held parallel to each other. The technic here as in other diathermy applications consists in reaching the point of comfortable heat tolerance, and maintaining it there for one half hour or longer. In treating this and other conditions by means of diathermy, as with other means, common sense and discretion must be employed. It is possible to overdo the treatment. When applied too frequently it is possible that the induced hyperaemia may not have sufficient time in which to recede and another superimposed hyperaemic session will increase the tension of the parts with consequent increase of pain.

The great value of diathermy in the treatment of gonorrheal urethritis and its complications does not mean that the other measures found of value in the treatment of this condition should be cast aside. Far from it. The use of gonococcidal solutions, prostatic massage, etc., should be employed pari passu with the diathermic procedures. These later are adjuncts and powerful adjuncts to the other means available for the eradication of the gonoccous from its human host.

471 Park Avenue.

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NEW YORK, MAY, 1927

Lord Lister

The first centenary of Lister's birth, celebrated on the fifth of April, has made us all realize how young modern surgery is, and also how completely dependent its phenomenal progress has been upon two basic things —Lister's contribution, and anesthesia.

Without animal experimentation, Lister would have been effectually handicapped. It will be recalled that his catgut researches involved the use of calves as subjects. To the precision and safety in the use of catgut growing out of Lister's animal experimentation any antivivisectionist would owe his life today, were he to sustain injuries involving wound repair and vascular ligation, or to require any cutting operation.

Therefore when we say that Lister was one of the greatest benefactors of the human race who ever lived the statement is inclusive of the antivivisectionists themselves.

"It is not a profession, it is not a nation, it is humanity itself which salutes him."

Cancer Control

The American Society for the Control of Cancer advocates two things, if human society is to win out in its fight against our most sinister scourage: promotion of research and application of the practical information now at hand. It is now engaged in a campaign which aims to create an endowment fund of $1,000,000 by next October, in order to put its programme into effect. If this campaign is supported as it should be it will be possible to make a measurable impression on cancer mortality. For it is a fact that many cases are curable that end fatally because timely medical aid is not invoked.

The fact that the cancer death rate is rising makes the success of this appeal imperative. That there should be hundreds of thousands of cancer victims in the country carries a certain humiliation and opprobrium. Investment in such a fund as that under discussion means a definite abatement of an evil situation. The address of the American Society for the Control of Cancer is 25 West Forty-third Street, New York City.

A Nineteenth Amendment

Although seemingly spoken in jest, Edna Ferber's prophesy at Yale University to the effect that a Nineteenth Amendment restricting food consumption will yet be added to the Constitution is not to be lightly dismissed. This would doubtless carry a "Volstead" Act along with it aimed against overfeeding. The justification for this sort of thing could be argued quite convincingly. Of course, like all prohibitions, it would be meant only to apply to "the other fellow."

Under such an amendment, said Miss Ferber, it would be illegal for food to be mentioned in literature; at least it could not be glowingly described; the Christmas puddings, tripe pies, and mugs of liquid refreshment that a Dickens gives to his men and women would be proscribed. Miss Ferber's particular fear is for her own creations, since she has been a good "provider," and has always fed her characters rather lavishly; naturally, she feels that her literary future is at stake and that the prohibitory censorship will reduce her royalties to the vanishing point.

The drama would be seriously hampered under the new prohibitory regime. Actors would not be permitted to use suggestive language calculated to inflame the appetites of their auditors, and no dining scenes would be tolerated. "We may consistently expect to see the Food Prohibition Enforcement Squad descend upon the theatre where a play is being given, and, when the heroine in the second act drops three lumps of sugar in the hero's tea, shout 'Padlock this place.' The new amendment against too much sugar has been violated."

All advertisements exploiting obscenely the gastronomic luxuries would be suppressed.

Not more than one pint of the popular syrups or one pound of sugar itself could be prescribed within the space of ten days for a convalescent patient. Candy would be contraband. Soda fountains would be abolished. Restaurants and hotels would be obliged to calculate caloric requirements and patrons' food cards punched accordingly.

Two important evils have already been nearly eliminated—sex and alcohol. And now those who overfeed grossly, like the old time drunkards, are about to bring upon us another deluge.

So wags the modern world away.

New War Strains

European military experts have recently made reports from which we gather that the next war between first class powers will be fought three times faster than the late world conflict.

It is suggested that the wear and tear upon the human beings who will take part in the next war will be far more severe than was the case during the late struggle, and it is thought that "the future

soldier must be made so productive as to be able to do the work of fifty old-time soldiers."

Fewer men will presumably be engaged; "trench warfare will be impossible; the struggle will be characterized by extreme movement, hasty action, advancement at night and in small bodies of both troops and supplies. The importance of airplanes, tanks and other forms of armed transport will diminish materially the number of troops to be transported."

We are told that "The general staffs of the various armies, aware of the speed at which the next war will be fought, are bending the greater part of their energies to excel potential enemies in the perfection of this new 'speed warfare.'" France, it appears, is so well prepared as regards air craft that it will be practically impossible for any of her potential enemies to mobilize against her, since her thousands of planes would put a prompt end to troop concentrations by combined bombing, machine gun and gas attack.

"Every one knows with something of a thrill the possibilities of speed, the control of time and space. Only a man who has thought deeply knows the price which must be paid."

The physical strains of the next war will be terrific, its destructive force frightful. One can, however, take some comfort out of the fact that it will be brief and that there will not be great bodies of troops to be slaughtered. Over against these considerations, however, is the certainty that civilian populations will suffer on a scale now inconceivably vast.

The deductions that we have made are sound in so far as the premises of the aforesaid military experts are well founded.

Good Faith or Betrayal?

We hasten to endorse the position taken by *The Medical Pickwick* in its leading April editorial, in which is forcefully expressed an opinion of an interview recently given by Dr. Jabez N. Jackson, president-elect of the American Medical Association. The interview followed an address given at Lindenwood College, a denominational school for girls, at St. Charles, Missouri, and was reported by the *St. Louis Star* of March 14.

"Pure bunk," was Dr. Jackson's characterization of evolution teachings.

"They are not only harmful to the thoughts of the younger generation, but are responsible in destroying the faith of the older people," he declared.

"Evolution is a nice theory to talk about," Dr. Jackson said in his talk. "But it is as useless, pointless, unproved, and unprovable a theory as has ever been promulgated and exploited by a bunch of half-baked, 16-year-old scientists."

Since biology is the basis of medicine, and modern biology is itself the child of evolution, the editor of *The Medical Pickwick* naturally marvels at Dr. Jackson's statement that evolution is "pointless and useless," and he concludes his opinion as follows:

At this time when the forces of ignorance are attempting to quench the light of modern learning, when untaught yokels in legislatures of state after state have passed or attempted to pass laws which will stop the progress of science in America, such public utterances as those of Dr. Jackson are dangerous, as well as a shameful reflection on the medical profession. Inductive experimental science has been the magic wand by which we have been able to overcome the dreadful power of the medieval giants, Dogma and Superstition. It is a grievous thing that a man who stands for organized medicine in America should lift his voice in behalf of the powers of darkness.

Unless the *J. A. M. A.* is insincere and guilty of bad faith (or worse) in its censorship policy it will speak in no uncertain terms itself regarding Dr. Jackson's offense. This is no mere matter of pharmaceutic or journalistic ethics but one of vital importance.

Will the *J. A. M. A.* keep faith with the profession? Can the *J. A. M. A.* measure up to the standard herewith set for it by the independent medical press?

Colon Filling Stations

Dr. Anthony Bassler makes a timely protest in the *Journal of the American Medical Association* (March 26, 1927) against the colonic irrigation fad, from which Britain and the Continent recovered long ago. America is now being exploited, and, as Bassler says, the number of filling stations has increased until today they are almost as numerous as gasoline depots.

Bassler points out that colon irrigation *per se* is practically a worthless procedure. There are only a few indications for colon irrigations, and then for only a short time, while in many instances they are contraindicated and on most occasions useless. The instillation of *Bacillus acidophilus* is just humbug.

The "colon wreck" is becoming more and more familiar, his condition being marked by anemia, general debility, tremendous dilatation of the entire colon, and inability to move the bowels save by irrigation.

During 1926, Bassler treated forty-seven patients who had been subjected to the filling station system, and found twenty-four suffering from such undiagnosed ailments as carcinoma, tuberculous ulceration, pernicious anemia, cardiovascular renal disease, Paget's disease, etc. "Of the twenty-three remaining, none had a condition which required colonic irrigaton."

Miscellany

Company Refuses to Pay His Old-Age Annuity to Hungarian After Rejuvenation Operation

Because the policyholder had a Voronoff grafting operation performed, a Hungarian insurance company has refused to continue to pay an annuity to a retired merchant of Budapest, says a message received in Paris.

The company argues that the effects of the operation have been sufficiently established scientifically to warrant annulment of the contract on the ground that the beneficiary no longer fulfills the conditions that obtained when it was signed. In a letter announcing its intention to cease payment, the annuity company states plainly:

"We have learned that last Fall you underwent an operation according to the method of Dr. Voronoff, and, consequently, it follows that you are younger today than you were when you signed the contract with us. In view of this fundamental change we find ourselves obliged to cancel the agreement entered into with you."

The case has been taken to court for a decision.—*New York Times.*

Dean Inge Asks Doctors into Pulpit

Health Sunday, with medical men in the pulpit, is one way of educating the public in disease prevention advocated by the Very Rev. W. R. Inge, dean of St. Paul's.

At a recent meeting of the Society of Medical Officers of Health, the dean suggested St. Luke's Day

as being particularly appropriate for such an occasion, since Luke was a physician.

The ignorance of the public in matters of health, he said, though not comparable with what it was fifty years ago, has remained astounding. The bulk of the blame for this condition, he is inclined to believe, rests on the doctors themselves. They have been too afraid of medical etiquette and public opinion and have not shown the courage they ought to have shown in enlightening the public about the nature of contagious diseases even more serious than smallpox, he declared.

"It is not too much to say that if the anti-vaccinist crusade had succeeded in 1914 we should have lost the war," he stated.—*The World.*

Hospital Connections

Board of Health statistics inform us that many lives could be saved annually with proper medical care. Millions of dollars are spent annually in hospital structures. Most physicians that are connected with these hospitals give 50 per cent of their time gratis to that service. Yet we have these preventable deaths.

The answer is that too many young physicians are barred from the hospitals—they are not able to explain to the frightened patient the service that the hospital renders because the patient is lost to him who is not officially connected. Therefore the poor man's physician must take desperate chances with his patient.

American medicine will no doubt see the need for unbarring its hospital doors for all reputable doctors. Only then can we hope for medical equity. We must recognize that the young physician is a human being with human needs. He lives in a commercial world and cannot afford to lose contact with his patients.

A PHYSICIAN'S WIDOW.

New York, Feb. 28, 1927.

The Medical Centre

On such a crag was old Prometheus bound,
But here the fire of Heaven shall rend the chain
And slay the vulture; here the sick shall find
Life rounding out again its broken round,
Nor all Olympus grudge the raptured gain,
Where man shall grasp the power to heal mankind.

ELMER ELLSWORTH BROWN, in the *New York Times.*

The Glands of Internal Secretion

(Concluded from page 108)

itary and the medullary portion of the adrenals are developed. Though skin and nerves are developed from the same embryological layer, they function differently. The nerve cells of the higher centers never regenerate and probably undergo no change in internal structure during the life of the individual; any changes they do undergo are solely due to the pathology of the interstitial tissues. This fixity of structure is probably the reason why the nerve cells are immune to disease; we have no disease of the nerves.

It is different with the skin: the cells there are being continually shed and replaced. This activity of function is a source of strength in reparation and of weakness in dysfunction.

As the nerves and skin are developed from the same somatic layer, it is reasonable to suppose that if the one suffers severely, the other escapes.

Nature, like every other efficient agent does but one thing at a time. The law of compensation holds strongly in the ectodermal structures. A well-developed brain is not commonly associated with well-developed skin structures.

The endocrine glands that most markedly affect the skin are developed from the same embryological layer. Foremost amongst these glands are the adrenals, the medullary portion of which when destroyed by disease produce the bronzing of the skin. Addisonismus is characterized by symmetrical patches of pigmentation (choasma), and is not uncommon in early life. It is probably due to partial destruction of the adrenals, for it is most frequently observed in patients with tuberculosis or hereditary syphilis. The chronic lesions of acquired syphilis are characterized by a coppery pigmentation, probably due to the influence of the disease on the adrenals. Arsenical pigmentation is in like manner due to the inhibition of the adrenal secretion by the arsenic.

The whole train of symptoms in pellagra suggests serious dysfunction of the adrenals.

Brock maintains that there exist relations between the thymus and the cutaneous epithelium. He obtained very favorable results in psoriasis, lichen ruber planus and verrucoses and ichthyosis with exposure of the thymus to *x*-rays, and believes that injections of preparations of thymus probably have the same effect.

412 West End Avenue.

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Cases of Blindness at Birth Decreased

A great reduction in the number of children becoming blind at the time of birth has been brought about in the last 16 years by the general adoption of the prophylatic treatment employed by physicians, according to information received from State health authorities by the Children's Bureau, Department of Labor.

The full text of the Bureau's statement on the subject follows:

The general use of prophylatic measures to prevent ophthalmia neonatorum, begun by physicians in this country about 16 years ago, has brought about a great reduction in the number of children blind from that disease, according to the records of schools for the blind. Twenty-five years ago one out of every three children admitted to schools for the blind in the United States was blind as the result of infection acquired at the time of birth. By last year the number had been reduced to about one out of every 10.

In the Maryland School for the Blind, 19 out of the total 101 pupils attending the school in 1925 had been made blind by such infections; but of the 16 new pupils admitted that year none was reported to have been blinded by birth infections. The same was true of the four children admitted that year to the Colored School for the Blind. Maryland is one of the States where this disease is reportable, and the State Department of Health furnishes free of charge to any physician who asks for it, and to all midwives, a supply of the solution used to prevent the disease.

Correspondence

A Criticism and a Rejoinder

To the Editor of THE MEDICAL TIMES:

In reading an article on Pulmonary Tuberculosis by M. W. Curran, M.D., in your March issue I notice he states: "You can always prove whether condition is active or inactive by the presence of persistent fine rales."

It is an established fact the presence of persistent fine rales have no relation to the activity or inactivity of a lesion. I have seen many inactive cases of Pulmonary Tuberculosis with persistent fine rales over the area of the healed lesion.

He also states in making a diagnosis of Acute Tuberculosis it includes "shower of fine persistent rales in one apex extending down to third dorsal vertebræ."

There are many cases of Acute Tuberculosis with no rales present in any part of the lung.

Truly yours,

BYRON G. SHULTS, M.D.

Herkimer, N. Y., April 1, 1927.

To the Editor of THE MEDICAL TIMES:

The foregoing communication of Doctor Shults I deem a compliment as it demonstrates an interested, though disgruntled reader of my article, "A Synopsis of Pulmonary Tuberculosis," published in your March issue.

Doctor Shults' criticism carries the weight of his personal authority, and when he asserts a condition as an "established fact," he simply alleges as true or capable of proof, but without proving or submitting any evidence of what has been alleged. That which is thoroughly *proved* is said to be established, and when I consult a few recognized writers, I find that his established facts are not even rumors, and have no standing outside his dogmatism.

". . . Fine crepitations are caused by the sudden expansion of the alveoli whose walls are stuck together with exudation..... They occur near the end of inspiration. . . . They are heard . . . early in tuberculosis."

Reference Handbook Med. Sciences, Vol. III, page 535.

". . . In the earliest stages . . . crackling rales are usually audible, especially after coughing."

Manual of the Practice of Medicine, page 301. Stevens.

"What are the physical signs of the first stage of pulmonary tuberculosis? . . . Careful auscultation by an acute observer may detect fine moist rales at the end of inspiration."

Essentials of Diagnosis, Cohen and Eshner, page 185.

"The only trustworthy sign of activity of apical tuberculosis is the presence of persistent moist rales.

"If small, the acute lesion is manifested by rales with or without changes in breath sounds, percussion note and voice transmission."

War Dept. Office Surgeon Gen. Memo. No. 3, August 22, 1917.

Colonel George E. Bushnell, in an article in the Military Surgeon, June, 1917, states: *"The writer agrees with Goldscheider that rales and crepitations are often present at the apices unaccompanied by alteration in the character of the breath sounds, which dissociation is usually evidence of a quite recent lesion."*

"The first signs of apical tuberculosis are not to be expected from percussion but from auscultation."

Deutsche Med. Wochenschr., 1915, 32. Schneider.

"In the earlier stages of incipient tuberculosis there may be no recognizable physical signs. The earliest physical signs are fine crackling rales."

Diagnosis. Cabot.

Pièry in his brilliant treatise on pulmonary tuberculosis remarks: *"At the risk of contradiction we would say that the only early stethoscope signs are rales."*

Dr. Shults' additional statement: "There are many cases of acute tuberculosis with no rales present in any form."

A little consideration will show why faulty auscultatory examinations in early cases frequently fail to elicit râles, and the necessity for a special technique (which was described in my article), to guide the inexperienced or careless examiner.

The normal lung tissue expands so readily and so greatly exceeds in amount the early tuberculous lesion that the inspired air, following the line of least resistance, finds it much easier to expand the normal vesicles than those that are more or less collapsed and occluded. Furthermore, while deep breathing (frequently requested) increases the amplitude of inspiration, it does not materially affect the amount of reserve air in the lung. Neither Dr. Shults or anyone else will find râles on examination of the above lungs as there is not enough secretion in the diseased vesicles to be set in motion by quiet breathing.

However, when the reserve air is expelled, by a forced expiration terminating in a cough, the air vesicles will be compressed and their mucus-coated surfaces approximated. With the succeeding inspiration those walls are suddenly separated, and râles are produced.

I notice on my desk a pamplet by Watson, Bishop of Llanduf, entitled, "The Wisdom and Goodness of God, in having made both rich and poor, with an appendix, containing reflections on the Present State of England and France."

The good Bishop is wrong as God made *male* and *female* and gave them the earth for inheritance and though it might lack in conclusiveness I would submit Biblical authority to verify my statement. That is what I deem constructive criticism, *corrective* and *informative*. Were I to tell the Bishop that it was an established fact that his opinions were erroneous, and failed to submit any authority to support my assertions, he would be justified in remarking that my verbiage was simply rigmarole, mere blatherskite, and an abominable bore.

M. W. CURRAN, M.D.

Chatsworth, New Jersey.

Another Dry Protest

To the Editor of THE MEDICAL TIMES:

I have been receiving and reading your Medical Journal for something over one year and I was amazed and disgusted that you, who ought to have some regard for the truth, the constitution of the states in which you live and that feeds and protects you, would permit any thing so full of falsehood as the speech made before the body of men by such an ass as Gillett showed himself to be, on that especial occasion and any man, no not man, but ass, like Gillett who will have such disregard for the constitution and laws of the country which guarantees him protection; life and liberty should be sent to live with wild hogs and asses that would guarantee him to drink and glutonize until he was dead; I have no regard for any (men will not do the things that Gillett did and say the things that he said, for men are truthful), one who will stultify himself with such utterances and manifest such ignorance and disregard for the truth as he was guilty of.

Respectfully,

C. W. HEFFNER.

P. S.—I am here to state that after forty-seven years of practice of medicine that there is not one redeeming quality of good in whiskey as applied to the healing of disease and it has no good place in medicine and is not needed only in the manufacturing of tinctures (and then it ceases to be whiskey)—fluid extracts, etc., but as whiskey it has no useful place in the healing of the sick.

NOTE:—THE MEDICAL TIMES will gladly print a good article from our correspondents in defense of prohibition.—*Editor.*

The Physician's Library

The Woman a Man Marries. By Victor Cox Pedersen, A.M., M.D., F.A.C.S. 276 pages. George H. Doran Company, New York, 1927.

Woman wants monogamy;
Man delights in novelty.
Love is woman's moon and sun;
Man has other forms of fun.
Woman lives but in her lord;
Count to ten, and man is bored.
With this the gist and sum of it
What earthly good can come of it?

It is a different review of the sex situation—from the foregoing one of Dorothy Parker—that Doctor Pedersen gives us in his book, one which is serious and learned and helpful. We have quoted the verses as a typical conception of marriage, relieved by wit, sponsored by the hopeless school of critics. Doctor Pedersen is a hopeful observer and philosopher.

Doctor Pedersen is to be heartily thanked for the thorough job he has done in revealing in her true colors that worst exhibit of our social system—the "virtuous woman." We have read with the greatest delight his castigation of the ugliest stupidity of our "iron civilization." And he returns again and again throughout the book to give her another well-directed and well-deserved sock in the eye.

What does Doctor Pedersen mean by the "virtuous woman"? She is one who is guilty of marital infidelity because of her abstinence from or frustration of normal intercourse growing out of her ignorance of biology, physiology and sociology, and out of her selfish obsession by the silly and false idea that sex relations are improper, vulgar and sinful. Out of her perversity emerge prostitution, muddled marriage, divorce, much venereal disease, and a myriad of other human ills.

(*Concluded on adv. page 24*)